GENERAL INFORMATION OF HIGHER EDUCATION INSTITUTION AND THE STUDY PROGRAMME

Name of Higher Education Institution	University of Mostar, School of Medicine
Address	Petra Krešimira IV bb, 88000 Mostar, Bosnia and Herzegovina
Phone/Fax	+ 387 36 335 600/601
E-mail	mef@sum.ba
Internet Address	http://www.mefmo.ba/
Name of the Study Program	Medical Studies in English
Provider of the Study Program	University of Mostar, School of Medicine
Type of Study Program	University Study Program
Level of Study Program	Integrated
Teaching Mode	Regular Study Program, Teaching Blocks in 12. Semesters
The Language on which the Study Program is being conducted	English Language
Academic/Vocational Title earned at completion of Study	Medical Doctor (MD)
Scientific/Artistic area to which the Study belongs	Biomedicine and Health
The duration of the Study Program and the number of ECTS Credits	12 Semesters (6 Years) with a total of 360 ECTS Credits

List of mandatory and elective courses with number of teaching hours and ECTS Credits

YEAR OF THE PROGRAM	Hours	ECTS
1st YEAR	805	60
2nd YEAR	790	60
3rd YEAR	825	60
4th YEAR	960	60
5th YEAR	1040	60
6th YEAR	1110	60
Total	5530	360

List of Courses

Year of Study: 1st YEAR					
COURSE TITLE	**L**	**S**	**E**	**Total Hours**	**ECTS Credits**
Medical Physics and Biophysics	24	16	20	60	5.5
Introduction to Medicine and History of Medicine	44	31	15	90	6
Medical Biology	42	38	30	110	10
Scientific Methodology and Medical Informatics	24	30	46	100	8.5
Anatomy	60	62	88	210	18
Medical Chemistry	24	30	26	80	7.5
Medical Ethics and Bioethics	20	25	0	45	1.5
SES1	8	7	10	25	1.5
Croatian Language I	0	30	0	30	0
Physical Education I	0	0	30	30	0
SES2	8	7	10	25	1.5
Total	254	276	245	805	60

Year of Study: 2nd YEAR					
COURSE TITLE	**L**	**S**	**E**	**Total Hours**	**ECTS Credits**
Histology and Embryology	50	44	41	135	10
Medical Biochemistry	42	34	34	110	9
Basic Neuroscience	20	56	24	100	8
SES1	8	7	10	25	1.5
SES2	8	7	10	25	1.5
Medical Physiology	67	74	39	180	18
Medical Psychology	20	20	20	60	4

Medical Genetics	20	5	20	45	4
Immunology	27	19	4	50	4
Croatian Language II	0	30	0	30	0
Physical Education II	0	0	30	30	0
Total	262	296	202	790	60

Year of Study: 3rd YEAR					
COURSE TITLE	**L**	**S**	**E**	**Total Hours**	**ECTS Credits**
Pathology	74	74	62	210	19
Pathophysiology	45	60	30	135	11
Medical Microbiology and Parasitology	21	30	44	95	8
Pharmacology	50	50	35	135	10
Clinical Propedeutics	30	0	70	100	4.5
Personalized Medicine and Biotechnology	10	10	10	30	0.5
Social Medicine and Health Management	30	30	10	70	4
SES1	8	7	10	25	1.5
SES2	8	7	10	25	1.5
Total	276	268	281	825	60

Year of Study: 4th YEAR					
COURSE TITLE	**L**	**S**	**E**	**Total Hours**	**ECTS Credits**
Radiology	35	16	49	100	6
Nuclear Medicine	10	10	10	30	1.5
Internal Medicine	65	80	195	340	19.5
SES1	8	7	10	25	1.5
SES2	8	7	10	25	1.5

Neurology	24	23	43	90	6
Anesthesiology and Intensive Medicine	20	0	40	60	5
Psychiatry	40	30	30	100	5.5
Infectology with Clinical Microbiology	20	35	65	120	8
Dermatovenerology	30	15	25	70	5.5
Total	260	223	477	960	60

Year of Study: 5th YEAR					
COURSE TITLE	**L**	**S**	**E**	**Total Hours**	**ECTS Credits**
Surgery	55	60	115	230	13
Neurosurgery	5	5	5	15	0.5
Urology	10	0	30	40	1.5
Clinical Oncology	5	10	35	50	2
Transphusiology and Transplantology	7	5	8	20	0.5
Gynaecology and Obstetrics	70	60	70	200	11
SES1	8	7	10	25	1.5
Otorhinolaryngology and Head and Neck Surgery	25	10	40	75	7
Maxillofacial Surgery	6	7	7	20	1
Ophthalmology	16	14	35	65	5.5
Orthopaedics and Traumathology	20	15	40	75	5
Physical and Rehabilitation Medicine	10	10	20	40	2
Clinical Rotation: Internal Medicine	0	20	80	100	5
Health Ecology and Occupational Medicine	20	20	20	60	3
SES2	8	7	10	25	1.5
Total	265	250	525	1040	60

Year of Study: 6th YEAR					
COURSE TITLE	**L**	**S**	**E**	**Total Hours**	**ECTS Credits**

Pediatrics	50	60	90	200	12
Family Medicine with Clinical Rotation	22	44	114	180	11
SES1	8	7	10	25	1.5
SES2	8	7	10	25	1.5
Epidemiology with Clinical Rotation	20	20	20	60	3
Medical Statistics	5	5	20	30	1
Forensic Medicine	17	17	16	50	3
Clinical Pharmacology	10	15	15	40	2
Clinical Rotation: Surgery	0	20	80	100	5
Clinical Rotation: Ginecology	0	20	80	100	5
Clinical Rotation: Paediatrics	0	20	80	100	5
Emergency Medicine with Clinical Rotation	0	20	80	100	6
Diploma Thesis and Final Exam	0	0	100	100	4
Total	140	255	715	1110	60

ELECTIVE SUBJECTS (SES– Small Elective Subject)

1st Year of Study						
Course	**Head**	**L**	**S**	**E**	**T**	**ECTS**
The Basics of Communication Skills in Medical Practice	Prof. dr. sc. Edita Černy Obrdalj	8	7	10	25	1,5
Laboratory Diagnostics of Inflammation	Doc. dr. sc. Ivanka Mikulić	8	7	10	25	1,5
Development and Anomalies of the Head and Neck	Prof. dr. sc. Katarina Vukojević	8	7	10	25	1,5
How to make your own organ	Doc. dr. sc. Sandra Kostić	8	7	10	25	1,5
Contemporary Learning Methods	Prof. dr. sc. Mladen Mimica	8	7	10	25	1,5
2nd Year of Study						
Course	**Head**	**L**	**S**	**E**	**T**	**ECTS**
Development and Inherited Kidney Disease	Prof. dr. sc. Katarina Vukojević	8	7	10	25	1,5
Anatomical Physiological Basis of Fitness Training	Doc. dr. sc. Mile Ćavar	8	7	10	25	1,5
Influence of Aerobic Training on	Prof. dr. sc. Danijel Pravdić	8	7	10	25	1,5

Bioenergetics of the Heart						
Gens and Pain - the Future of Tailor-made treatment	Doc. dr. sc. Sandra Kostić	8	7	10	25	1,5
The Child "from the tubes"	Doc. dr. sc. Snježana Mardešić	8	7	10	25	1,5
3rd Year of Study						
Course	**Head**	**L**	**S**	**E**	**T**	**ECTS**
Family in Health and Disease	Prof. dr. sc. Miro Klarić	8	7	10	25	1,5
Clinical Significance of Developmental Disorders of the Digestive System	Doc. dr. sc. Joško Petričević	8	7	10	25	1,5
Pathophysiology of Nephropathy	Doc. dr. sc. Slavica Ćorić	8	7	10	25	1,5
First Aid	Prof. dr. sc. Edita Černy Obrdalj	8	7	10	25	1,5
Diagnosis, Prevention and Treatment of Obesity	Doc. dr. sc. Ivo Soldo	8	7	10	25	1,5
4th Year of Study						
Course	**Head**	**L**	**S**	**E**	**T**	**ECTS**
Disorder of Memory, Learning, Opinion and Dementia	Prof. dr. sc. Anđelko Vrca	8	7	10	25	1,5
Pain and Palliative Medicine	Prof. dr. sc.Vesna Golubović	8	7	10	25	1,5
Respiratory Tract Disorders	Prof. dr. sc.Vesna Golubović	8	7	10	25	1,5
Ability to visualize Neural and Musculoskeletal Injuries and Illnesses	doc. dr. sc. Miro Miljko	8	7	10	25	1,5
Violence in the Living and Working Environment	Prof. dr. sc. Marija Definis-Gojanović	8	7	10	25	1,5
Diseases of the Pituitary Gland	Prof. dr. sc. Milan Vrkljan	8	7	10	25	1,5
Medical Geriatrics	Prof. dr. sc. Žarko Šantić	8	7	10	25	1,5
5th Year of Study						
Course	**Head**	**L**	**S**	**E**	**T**	**ECTS**
Hypertensive Disease in Pregnancy	Prof. dr. sc. Marko Vulić	8	7	10	25	1,5

Contemporary Principles for the Treatment of Cerebrovascular Diseases in Neurosurgery	Prof. dr. sc. Bruno Splavski	8	7	10	25	1,5
Mucus Diseases - Multidisciplinary Approach	Prof. dr. sc. Dubravka Šimić	8	7	10	25	1,5
Diabetes in Pregnancy	Prof. dr. sc. Vajdana Tomić	8	7	10	25	1,5
Clinical Neurotraumatology of the Endocranium	Prof. dr. sc. Bruno Splavski	8	7	10	25	1,5
Endoscopic and Laparoscopic Procedures in Clinical Practice	Doc. dr. sc. Ivo Soldo	8	7	10	25	1,5
Minimally invasive Procedures in Gynecology	Prof.dr.sc. Herman Haller	8	7	10	25	1,5
Eye, Systemic and Associated Diseases	Doc. dr. sc. Antonio Sesar	8	7	10	25	1,5
Bol - a scientific approach to Pathophysiology, Diagnosis and Treatment	Akademkinja Vida Demarin	8	7	10	25	1,5
6th Year of Study						
Course	**Head**	**L**	**S**	**E**	**T**	**ECTS**
The Basics of plastic, reconstructive and aesthetic Facial Surgery	doc. dr. sc. Mario Jurić	8	7	10	25	1,5
Computer supported Auscultation of the Heart	Doc. dr. sc. Željko Rončević	8	7	10	25	1,5
Emergency Conditions in Otorhinolaryngology	Doc. dr. sc. Boris Jelavić	8	7	10	25	1,5
Urgently, Politraum is coming	Prof. dr. sc. Slobodan Mihaljević	8	7	10	25	1,5
Emergency Conditions in Paediatrics	Acc. Prof. dr. Senka Mesihović-Dinarević	8	7	10	25	1,5

Basics of Cardiac Surgery of Acquired Heart Disease	Doc. dr. sc. Igor Rudež	8	7	10	25	1,5
Naval Medicine	Prof. dr. sc. Nadan Petri	8	7	10	25	1,5

Course description

1st Year of Study

Name of the course	**Medical Physics and Biophysics**			**Code**	
Type of study program Cycle	Integrated Study Program, Medicine			**Year of study**	I
Credits (ECTS) :	**5,5**	*Semester*	I	Number of hours per semester (l+e+s)	60 (24+20+16)
Status of the course:	required	*Preconditions:*		*Comparative conditions:*	
Access to course:	First Year Students			*Hours of instructions*:	According to schedule
Course teacher:	Professor Dario Faj				
Consultations:	hour before and after lectures				
E-mail address and phone number:	dariofaj@mefos.hr				
Associate teachers	Stipe Galić, dipl. ing. Assistant professor Mladen Kasabašić Associate professor Marija Raguž dr. sc. Hrvoje Brkić				
Consultations:	One hour before and after lectures				
E-mail address and phone number:	fizika@mefos.hr				
The aims of the course:	The aims of this course are: Understanding the basic concepts of physics and their application to biological systems. Applying knowledge and skills associated with force and motion, optics and optical devices, electricity and magnetism, the basics of spectroscopy, hydrodynamics and hydrostatics, electromagnetic spectrum, ionizing radiation sources, thermodynamics, oscillations, sound and ultrasound waves and their application in medicine and physiology. Synthesize the analytical, quantitative approach to the study of the functions of the human body.				
Learning outcomes (general and specific competences):	• Evaluation of physical basics necessary for understanding the application of physical laws in biological systems				

	• Understanding the physical quantities and units used in biophysics and medical physics • Remembering and understanding the physical basis of biological processes at the molecular level • Understanding the mechanisms of biological systems based on knowledge of the fundamental laws of physics using simple models • Applying the ways of transfer of energy and materials within the body and in its interaction with the environment • Understanding the impact of external sources of energy on the body • Evaluation of the physical basis of diagnostic and therapeutic methods in medicine • Applying the use of simpler measuring instruments and interpretation of the results • Applying the knowledge gained in the field of physics in practice and independently continue to expand their knowledge in the above areas.
Course content (Syllabus):	Course consists of 9 units, 2 test assessment in seminars, colloquium assessment on exercises, individual work on a given topic and solving numerical problems. Each thematic unit includes: 2-3 hours of lectures, 1 to 2 hours of seminars and 2-3 hours of exercises. **Basic mathematical functions in biology and medicine**: Linear. The reciprocal dependence. Exponential. Logarithmic. Periodic: harmonic and anharmonic. The vectors and vector operations. Differential calculus. **Performing practical laboratory exercises**: A statistical and computer processing of data and way of writing. **The structure of atoms and molecules:** Structure and stability of atomic nuclei. Radioactivity. The structure of the molecule. Covalent, ionic and polar binding. The energy situation in the molecule. Electromagnetic radiation. The types of electromagnetic radiation. The dual properties of EM light (test). The interaction of electromagnetic radiation and matter. Law absorption. Introduction to spectroscopy. The types of spectroscopy. The use of radioactivity and EM waves in medicine **Optics**: Electromagnetic waves; refraction reflection, diffraction, dispersion. Geometric optics. The spread of light through space. The sphere level, and a combination of spherical diopter. Lenses. Mirrors. Physical optics. **The concept of force and energy**: The movement of solid bodies. Energy of the body. Newton's laws. The movement and deformation of solids under the action of forces. Centripetal and centrifugal force, the use in the medicine, experiment. Lever; translational and rotational balance. Types lever in the human body.

<table>
<tr><td></td><td colspan="4">Hydrostatics and hydrodynamics: Physics of gases and example applications in medicine. Pressure. Pascal's law, hydrostatic pressure, buoyancy, Bernoulli's law, Poisselov law. The rheological properties of the blood. Simpler examples of the basic laws of hydrostatics and hydrodynamics of the human body.
Introduction to Electricity and Magnetism: Electric and magnetic field. Polarization. Induction. The action potential. Physical basics of ECG, EEG and EEG. Tissues in electric and magnetic field. The tissue in constant and variable electric field; Mechanisms of tissue polarization. The tissue in constant and variable magnetic field; Magnetic properties of matter. Mechanisms of heating tissue in the changing electric, variable magnetic and electromagnetic field. Practical examples and experiments.

Thermodynamics: Basic laws of thermodynamics. Thermodynamics of biological systems. The transfer of energy. Practical example of energy transfer due to different temperature and numerical solution problems . Transfer of mass. Diffusion. Osmosis. Nernst equation in biology, chemistry, physics, physiology

Flickering as the source of the wave: The sound wave. Sound wave propagation through space. audiometry; isophonic curve. The level of intensity. dB. Volume level. The relationship of physical and physiological parameters

Ultrasound: Operation and performance of ultrasound devices. Physical basis. Doppler effect. Operation and implementation of ultrasound that uses the Doppler effect. Physical limitations of ultrasound devices</td></tr>
<tr><td rowspan="3">Format of instruction (mark in bold)</td><td>Lectures</td><td>Exercises</td><td>Seminars</td><td>Independent assignments</td></tr>
<tr><td>Consultations</td><td>Work with mentor</td><td>Field work</td><td>Other</td></tr>
<tr><td colspan="4">Remarks:</td></tr>
<tr><td>Student responsibilities</td><td colspan="4">Attendance at all forms of instruction is required, and the student should access to all the knowledge tests. Student may legitimately be absent from 30% of lectures and seminars. If student miss practical exercise it must be compensate.</td></tr>
<tr><td rowspan="2">Screening student work (mark in bold)</td><td>Class attendance</td><td>Class participations</td><td>Seminar essay</td><td>Practical training</td></tr>
<tr><td>Oral exam</td><td>Written exam</td><td>Continous assesment</td><td>Essay</td></tr>
<tr><td colspan="5">Detailed evaluation within a European system of points</td></tr>
</table>

STUDENTS RESPONSIBILITIES	HOURS	PROPORTIONS OF ECTS CREDITS	PROPORTIONS OF MARK
Class attendance and participations	40	1.5	
Seminar essay	10	0.5	6%
Written exam	40	1.5	80%
Continous assesment	15	0.5	10%
Practical work	35	1.5	4%

Further clarification:

Attendance: Attendance at more than 70% of lectures and seminars, and do of all laboratory exercises.
Practical work (exercise): attendance at all laboratory exercises, and taking the practical part of the exam. The practical part of the exam is required to pass. Passed exam means duly completed laboratory testing exercise without major errors and comprehension exercises performance (2%), or exercise performed without error and understanding exercises performance (4%). Once passed the practical exam value by the end of the academic year.
Seminars: seminar paper on a given topic and presentation to other students:
0% = The work is not written or plagiarism.
0% = The work does not meet the formal criteria or the content is incorrect or out of the default theme.
1% = The work meet the formal criteria but are perceived more deficiencies in the content field.
2% = Work satisfies both form and content and were observed grammatical and spelling errors.
3% = The work is exhaustive, substantially affected by the grammar and spelling is correct.
Presentation:
0% = work is not presented
1% = work is presented with errors in pronunciation and grammar and poor cooperation with listeners
2% = work is solidly presented, occasional errors in pronunciation or grammar with the existing cooperation with listeners
3% = work is exquisitely presented, almost without language errors, excellent cooperation and relationship with the audience
Final written exam
Exam with 40 questions with multiple answers. Each correct answer carries 2% of the total marks.

Continuous assessment and a short written test
b) Participation in solving numerical problems - a maximum of 2% of the grade
c) Written and oral assessment during class - up to 8% of the grade

Final score:
The final assessment is carried out according to the Regulation of Studies of the University of Mostar and applies to all study groups. According to the Regulations 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	
Required literature:	JasminkaBrnjas - Kraljević: Physics for medical students, Medicinska naklada, Zagreb, 2001. ISBN: 9531761566. J. Brnjas-Kraljević: Physics 1, the structure of substances and diagnostic methods, Medicinskanaklada, Zagreb, 2001. Literature: www.physics.mefos.hr
Optional literature:	FranjoŠolić, GordanaŽauhar: Physics for medical students, Sveučilište u Rijeci, Medicinski fakultet, Rijeka 2013. D. C. Giancoli: Physics: Principles with Applications, Sixth Edition, Prentice Hall, Inc., 2004. ISBN: 0130606200. G. Rontó, I. Tarján, L. Berkes, S. Györgyi: An Introduction to Biophysics with Medical Orientation, AkadémiaiKiadó, Budapest, 1999. ISBN: 9630576074
Additional information about the course	Monitoring methods of teaching quality: - student questionnaire - quality analysis by students and teachers - exam results analysis - report of the office for teaching quality - external evaluation (visit of team for quality control)

Annexes: calendar classes

The number of teaching units	**TOPICS AND LITERATURE**
I.	Title: Introduction
	Short description: Overview of the college. Division of seminars and manner of performance. The initial test. Basic mathematical functions, vectors, Fourier analysis, integral, differential. Basic physical quantities and units. Body motion (kinematics).
	Literature: required and optional
II.	Title: The structure of atoms and molecules
	Short description: Structure and stability of atomic nuclei. Radioactivity. The structure of the molecule. Covalent, ionic and polar binding. The energy situation in molekuli.Electromagnetic radiation. The types of electromagnetic radiation. The dual properties of EM light (test CD as an optical grating). The interaction of electromagnetic radiation and matter. Law absorption (experiment). Introduction spectroscopy. The types of spectroscopy. The use of radioactivity and EM waves in medicine.
	Literature: required and optional
III.	Title: Hydrostatics and hydrodynamics

	Short description: Pressure. Physics of gases and example applications in medicine. Pascal's law, hydrostatic pressure, buoyancy. Bernoulli's law. Properties of real fluid. Poisselov law. Surface tension liquids. The rheological properties of the blood. Simpler examples of the basic laws of hydrostatics and hydrodynamics of the human body.
	Literature: required and optional
IV.	Title: The concept of force and energy
	Short description: The movement of solid bodies. Energy body. Newton's laws. Examples (motion, centrifugal force, ...). The movement and deformation of solids under the action of forces. Lever; translational and rotational balance. Types lever in the human body. Deformation of solids. Modeling of biological materials.
	Literature: required and optional
V.	Title: Thermodynamics
	Short description: thermodynamics laws. Calorimeter. Thermodynamics of biological systems. The transfer of energy. Diffusion. Thermodynamics of biological systems. The transfer of energy. Mass transfer.
	Literature: required and optional
VI.	Title: flicker as the source wave. sound wave
	Short description: Sound wave propagation through space. audiometry; izophonic curve. The level of intensity. dB. Volume level. The relationship of physical and physiological parameters. Ultrasound. Operation and implementation of ultrasound devices. Physical basis. Doppler effect. Operation and implementation of ultrasound that uses the Doppler effect. Physical limitations of ultrasound devices.
	Literature: required and optional
VII.	Title: Electricity and magnetism
	Short description: Introduction to Electricity and Magnetism. Electric and magnetic field. Polarization. Induction. The action potential. Physical basics of ECG, EEG and EEG.
	Literature: required and optional
VIII.	Title: Optics
	Short decription: The electromagnetic waves; refraction reflection, diffraction, dispersion. Geometric optics. The spread of light through space. The sphere level, and a combination of spherical diopter. Lenses. Mirrors.
	Literature: required and optional

Name of the course	**Introduction to Medicine and History of Medicine**			**Code**	
Type of study program Cycle	Integrated Study Program, Medicine			**Year of study**	I
Credits (ECTS) :	**6**	*Semester*	I	Number of hours per	90 (44+15+31)

				semester (l+e+s)	
Status of the course:	mandatory	*Preconditions:*		*Comparative conditions:*	
Access to course:	First year students			*Hours of instructions*:	According to schedule

Course teacher:	Assistant professor Miro Leventić, MD, PhD Professor Gordana Pavleković, MD, PhD Professor Žarko Šantić, MD, PhD Professor Zdenko Ostojić, MD, PhD Professor Monika Tomić, MD, PhD Professor Milenko Bevanda, MD, PhD Professor Ivo Curić, MD, PhD Professor Helena Škobić, MD, PhD Professor Dara Glamuzina, MD, PhD Professor Dubravka Šimić, MD, PhD
Consultations:	Mondays and Thursdays from 12 to 13 or according to deal
E-mail address and phone number:	gomila@hotmail.com gpavleko@snz.hr
Associate teachers	Assistant professor Irena Musa, MD, PhD Assistant professor Jasna Zeljko Penavić, MD, PhD Assistant professor Josip Mišković, MD, PhD Assistant professor Josip Grubeša, MD, PhD Dijana Zelenika, MD, PhD Goran Moro, MD, PhD Zoran Karlović, MD, MSc Marko Pavlović, MD, MSc
Consultations:	
E-mail address and phone number:	

The aims of the course:	The aims of this course are: - To introduce students with studying in medical school. - To understand the medicine through history and overview the way of studying in Europe and the world. - Understanding the role of doctors in the health system and in the society. - Analyzing the definition of the health and health system in the immediate and wider environment. - Understanding the unique medical Latin through basics of Latin language. Through History of Medicine course, to enable students to understand: - the development of the key medical paradigms in different historical periods; - the changes in the development of skills and knowledge between respective medical professions;

<table>
<tr><td></td><td>- the effect of contextual environment onto the development of the profession and health services throughout the history
- the connection of the development of medicine through history with modern medicine and its further advancement both worldwide and locally</td></tr>
<tr><td>Learning outcomes (general and specific competences):</td><td><u>General outcomes:</u>
Applying the independent learning through the study in the way of critical and self-critical questioning of scientific truth.
Remembering the possession of personal qualities (team work and personal contribution, interest, active listening, and building positive relationships with members of the group).

Specific outcomes:
Remembering and understanding the historical development of medical paradigms and medical specialties and their influence to modern medicine

Remembering and understanding the importance of the development of experimental method in the foundation of scientifically proven medical knowledge

Remembering the important achievements in historical periods and understanding their connections with modern medical science and practice

Understanding and critically analyzing the development of medical profession and healthcare institutions throughout the history and link it to contemporary challenges in medicine and healthcare

Remembering the accomplishments of significant people that have affected medicine and healthcare throughout the history both locally and worldwide.</td></tr>
<tr><td>Course content (Syllabus):</td><td>Teaching consists of subunits: Introduction to medicine, Latin language, Medical sociology, First aid, Health care, History of Medicine and exercises.</td></tr>
<tr><td>Format of instruction (mark in bold)</td><td>
<table>
<tr><td>Lectures</td><td>Exercises</td><td>Seminars</td><td>Independent assignments</td></tr>
<tr><td>Consultations</td><td>Work with mentor</td><td>Field work</td><td>Other</td></tr>
</table>
Remarks: The teaching of each unit begins with lectures, followed by seminars and exercises. At the seminars, students receive problem tasks that are analyzed in small groups. At the end of the seminar a quiz-test is conducted, and then students analyze the correct answers with explanations of problems. During exercises, students are</td></tr>
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	applying the image of the work at certain clinics and at the end take preliminary test on given exercises.
Student responsibilities	Final exam, tests, attendance and participation in class. Students will be evaluated based on: • Active participation in seminars and exercises. • Preparation of teaching units for seminars • Reading of teaching texts and development of their own critical thinking about the material and expression of the same thinking. • Work in small groups

Screening student work (mark in bold)	**Class attendance**	**Class participations**	**Seminar essay**	**Practical training**
	Oral exam	**Written exam**	**Continous assesment**	Essay

Detailed evaluation within a *European system of points*

STUDENTS RESPONSIBILITIES	**HOURS**	**PROPORTIONS OF ECTS CREDITS**	**PROPORTIONS OF MARK**
Class attendance and participations	15	0,5	0%
Seminar essay	30	1	0%
Written exam	60	2	50%
Oral exam	45	1,5	50%

Further clarification:
Exam is written and oral.

Written test (completed written test is 50% of the grade)
All students who weren't absent from school have the right to take the 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. After the end of the course test that covers materials from the History of medicine, Introduction to medicine, Medical sociology and First aid and Health care in the form of an integrated test and a special exam in Latin language will be conducted. The assessment criteria of written exam: The total percentage of correct answers needed for a positive assessment is 60%.

Oral exam (50% of the final grade)
The oral exam consists of 4 questions: Introduction to medicine 2, Health care 1, First aid 1 question.

Final grade:
The final grade is the sum = complete written test (50%) + oral exam (50%).

Required literature:	Grmek.,Budak A.: Introduction of Medicine ,Nakladni zavod Globus,3edition ,Zagreb 1996

	VnukV,:Urgent medicine ,3 revised edition,Alfa,Zagreb ,1995 Prlić N,:Health care ,Školska Knjiga,3revised edition,Zagreb, 1997 Broz LJ.,Budisavljević M., FrankovićS.:Health book 3,2 edition,Školska Knjiga,Zagreb,2001
Optional literature:	Orešković S.:Medical sociology (skripta) Kovačević P., Handbook for practical training in first aid Univerzitet u Banjaluci ,Medicinski fakultet,Banja Luka,2012
Additional information about the course	Monitoring methods of teaching quality: - student questionnaire - quality analysis by students and teachers - exam results analysis - report of the office for teaching quality - external evaluation (visit of team for quality control)

Annexes: calendar classes

The number of teaching units	**TOPICS AND LITERATURE**
I.	Title: What is the medicine? About study of medicine, division of medicine and the figure of the doctor. What is the health (WHO definition), how to preserve it and improve it?
	Short description: basic concepts of medicine and the study of medicine
	Literature: required and optional
II.	Title: The main health problems in FBiH (in terms of organization of health care and health insurance)
	Short description: Condition of Health in FBiH and the most obvious problems encountered
	Literature: required and optional
III.	Title: What is the disease, how to prevent it and treat its effects. Looking back in history of medicine . Birth of modern medicine.
	Short description: The definition of the disease, the relation of the patient and the disease and the relationship between the doctor and the disease and the doctor and the patient.
	Literature: required and optional
IV.	Title: Medical Sociology, Health behavior: positive, promotional and illness. Theoretical approaches to the relationship doctor-patient.
	Short description: a short introduction to the concepts and definitions of health and the relationship between behavioral sciences and medicine
	Literature: required and optional
V.	Title: Medical Sociology: Theory of stress and social support .The main forms of social anomie. Career patients.
	Short description: basics of stress and its influence on the health of patients
	Literature:required and optional

VI.	Title: Medical Sociology, Health behavior: positive, promotional and illness. Theoretical approaches to the relationship doctor-patient
	Short description: The psychological approach to the patient and his disease
	Literature: required and optional
VII.	Title: Latin
	Short description: Basics of Latin that are essential for understanding the medical language
	Literature: required and optional
VIII.	Title: Introduction to medical care
	Short decription: The basics of first aid
	Literature: required and optional
IX.	Title: Acute poisoning and first aid (identification and elimination of toxins from the body, antidotal and symptomatic therapy the most common poisoning, poisoning plants
	Short description: A short introduction to the poisoning and cure of
	Literature: required and optional
X.	Title: Recognizing obstruction of upper airway and Corrective Actions
	Short description: Diagnosis and treatment of upper airway obstruction
	Literature: required and optional
XI.	Title: The clinical requiring basic resuscitation procedures and sensitivity of brain cells to stop circulation (hypoxia)
	Short description : basic knowledge of revival
	Literature: required and optional
XI.	Title: Basic procedures revival and subsequent resuscitation methods, the difference percentage of oxygen that gets patient from exhaled mixture of the air of rescuers and the application of mechanical ventilation
	Short description: methods oft he revival and the use of oxygen
	Literature:required and optional
XII.	Title: Recognition of cardiac arrest on the monitor and ECG difference normal curve and ventricular fibrillation, total atrioventricular block and electromechanical dissociation
	Short description: Interpretation and diagnosis of heart failure
	Literature: required and optional
XIII.	Title: The historical turning point medicine. Basics of scientific medicine. Psychological Medicine and its importance in the everyday activities of doctors
	Short description: The history and impact of science on the medicine development
	Literature: required and optional
XIV.	Title: 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. Basic skills assessment the patient's condition. Mastering basic skills of nurturing patients, patients personal hygiene and hygiene of its environment, care for comfort. Prevention of infection, the conditions essential for the development of infection.

	Short description: Become familiar with the role of nurses in medicine
	Literature: required and optional
XV.	Title: Access to health care in pediatrics. The most common health problems in pediatrics. Cardiopulmonary resuscitation of the newborn. The procedure with a child in convulsions
	Short description: Special features of the pediatrics work
	Literature: required and optional

Name of the course	**Medical Biology**			**Code**	
Type of study program Cycle	Integrated Study Program, Medicine			**Year of study**	I
Credits (ECTS) :	**10**	*Semester*	I	Number of hours per semester (l+e+s)	110 (42+30+38)
Status of the course:	mandatory	*Preconditions:*		*Comparative conditions:*	
Access to course:	First year students			*Hours of instructions*:	According to schedule
Course teacher:	Professor Jurica Arapovic, MD, PhD				
Consultations:	By e-mail				
E-mail address and phone number:	mefmobiologija@gmail.com				
Associate teachers	Academician Stipan Jonjić, MD, PhD Professor Bojan Polić, MD, PhD Maja Arapović, DVM, PhD Božo Šušak, MD				
Consultations:	By e-mail				
E-mail address and phone number:	mefmobiologija@gmail.com				
The aims of the course:	Principal aim of this course is 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 and genetics with an emphasis on human biology. They will be actively involved in problem-orientated work, organized in the form of 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.				

Learning outcomes (general and specific competences):	<u>General competences:</u> 1. Capacity for independent learning 2. Development of communication skills 3. Capacity for critical questioning and scientific reasoning 4. Development of creative thinking 5. Ability to use information technology and adoption of new information 6. Ability of teamwork - group work 7. Development of ethics and responsibility <u>Specific competences:</u> 1. Remembering the basic structure and function of cells (macromolecules, cytoskeleton, transport of macromolecules, organelles, mitochondria and energy production, cell cycle, cell signaling and tumor biology)

	2. Remembering 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) 3. Remembering the basics of developmental biology (fertilization, meiosis, mitosis, stem cells and the molecular mechanisms of cell differentiation) 4. Understanding the medical human genetics (basic principles of genetic inheritance, sexual and autosomal inheritance, chromosome aberrations, genetic counseling)			
Course content (Syllabus):	During the course, knowledge of the students will be tested through seminars and exercises. Also, acquired knowledge will be verified through weekly tests, held every Monday, which will include material from the previous week.			
Format of instruction (mark in bold)	**Lectures**	**Exercises**	**Seminars**	**Independent assignments**
	Consultations	Work with mentor	Field work	Other
	Remarks:			
Student responsibilities	Students are required to attend and actively participate all classes, including five weekly tests. It is allowed to be justifiably absent from 20% of classes.			
Screening student work (mark in bold)	**Class attendance**	**Class participations**	**Seminars**	**Practical training**
	Oral exam	**Written exam**	**Continuous assessment**	Essay

Detailed evaluation within a *European system of points*

STUDENTS RESPONSIBILITIES	**HOURS**	**PROPORTIONS OF ECTS CREDITS**	**PROPORTIONS OF MARK**
Class attendance and participations	150	5	0%
Seminars	-	-	0%
Written exam	90	3	80%
Oral exam	60	2	20%

Further explanation: The course of Medical biology is performed during the first semester in the form of lectures (75 hours), seminars (40 hours) and exercises (35 hours). All forms of education are obligatory, and the participation of students will be monitored regularly. During the course, through active participation (lectures, seminars and exercises),
student can acquire up to 70% (or 70 points) of its final grade. The remaining 30% (or 30 points) can be achieved in final exam, which is organized through written and oral exams.

A student can achieve 70 points during lectures as follow:
Seminars: up to 5 points (5%)
Test 1: up to 13 points (13%)
Test 2: up to 13 points (13%)
Test 3: up to 13 points (13%)
Test 4: up to 13 points (13%)
Test 5: up to 13 points (13%)
During seminars and exercises, students will actively discuss the topic, which usually refers to lecture held by day before. The teacher evaluates the student's participation in the seminar (demonstrated knowledge, understanding, ability to define problems and reasoning). During each seminar and exercise students can achieve a maximum of 0.5 points. Altogether, through the all seminars and exercises students can achieve up to 5 points. Weekly tests are a mandatory part of the course and are held on Mondays. Test contains 30 questions related to the material from previous week. In order to pass the test, students must correctly answer more than 10 out of 30 questions (> 30%) of every weekly test. Correct answers are scored according to the following key:
26 - 30 = 13 points
21 - 25 = 11 points
15 - 20 = 9 points
10 - 14 = 7 points
<10 = 0 points
IMPORTANT!!!
• The passage of the weekly test is considered if a student achieves more than 10 points on the test!
• Students who do not pass one of five weekly tests cannot access to further weekly testing, but can access the examination periods as follows (see below) and should actively participate through course.
• Students who achieve ≥40 points through class can take the final exam as indicated below in the section final exam. All those students who have ≥65 points through class are exempt from written part of the final exam, meaning that an additional 15 points are automatically added to (maximal possible number of points on final exam), and they access only the oral part of the final exam.
• Students who achieve <40 points can take a final exam divided in two part, eg. more comprehensive written exam (test consisted from 100 questions) and oral examination ("classic mode" exam, see below).
• After successfully attended courses, students who achieve ≥40 points can choose either the examination based on pointing system (points from class + weakly test scores) or the "classic mode" examination. In the later case the points gained through course are not calculated into final score. In the case that the option is "classic mode", students must inform the Head of the Department no later than 72 hours before than final exam starts.
The "**classic mode**" of final exam is combined by comprehensive test (100 questions) and oral exam. Final grade depends solely on the results from test and oral exam that are arithmetically combined.
• If a student achieves <60% on the "**classic mode**" written exam means that he failed the test and is not allowed to take the oral examination.
• All points scored thought course and written part of the final exam are valid until the

commission exam, when students take exam 4th time.

• **The Commission's examination** (4th time) consists of written (test of 100 questions) and oral exam. This applies to all students, regardless of scoring status through course! Passing threshold for the commission exam is 55%, whereas oral exam consists of "five oral exam questions" covering three areas of the course (two for general biology, two for molecular biology and one for genetics).

Final exam: (for those students who scored ≥40 points through course)
The final exam consists of a written and oral examination. The total number of points scored on the final exam is 30 (written + oral), and to pass the exam it is required to achieve at least 8 points.

The written part of the final exam consists of test containing 50 questions, covering and integrating material from course. Grading is performed according to the following key:
48 - 50 = 15 points
45 - 47 = 14 points
42 - 44 = 13 points
39 - 41 = 12 points
36 - 38 = 11 points
32 - 35 = 10 points
29 - 31 = 9 points
25 - 28 = 8 points
<25 = 0 points

The oral part of the final exam is mandatory for all students which have passed written part. Through written part students can score a maximum of 15 points. The minimum number of points to pass the oral exam is 8. Student, who scores 0-7 points, fails pass the exam, and testing must be repeated. The oral exam consists of "three oral exam questions" covering each out of three areas of the course (general biology, molecular biology and genetics). If student fails to respond sufficiently to any of those "oral exam questions" he cannot pass the oral exam.
The oral exam grading is estimated by the following key:
Excellent = 14 - 15 points
Very good = 12 - 13 points
Good = 9 - 11 points
Sufficient = 8 points
Insufficiently = 0-7 points

IMPORTANT!!!
• All those students who do not pass final exam (<8 points) can re-access to the final exam at the next regular examination period under the same conditions.
• All students who chose "classic mode" of examination will take this mode every time following by regular examination periods.
• Once student pass the written exam, it is valid for the next examination periods!
• If students have scored 40 or more points and could not pass the final exam through regular examination periods, they will take a commission exam under conditions described above!

(Please see part ***The Commission's examination***)

Final score:

The final grading is formed by the sum of whole points every students score through course and points obtained in the final exam (written and oral exam). Grading is performed according to the following key:

90 - 100 = excellent (5)
80 - 89 = very good (4)
68 - 79 = good (3)
56 - 67 = sufficient (2)
0 - 55 = inadequate (1)

Regardless of the points scored through course, final grade cannot be obtained if student was not positively evaluated on the final oral exam.

The "**classical mode**" of evaluation of the test:

90 - 100 = excellent (5)
80 - 89 = very good (4)
70 - 79 = good (3)
60 - 69 = sufficient (2)
0 - 59 = insufficient (1)

According to Commision's exam, final grade for the written part of the exam is performed according to the following key:

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

Required literature:	1. Geoffrey M. Cooper and Robert E. Housman: "Cell - molecular approach," Medical Biochemists, Zagreb (2010), the Library of university textbooks, Fifth Edition, Professional editor of the Croatian edition: prof. Ph. D.. Gordan Lauc, ISBN 978-953-176-493-3 2. Turnpenny P Ellard S. Emery base medical genetike.14. edition, Medical Biochemists, Zagreb, 2011. 3rd Peruzovic M. Resnik T .: Medical Biology, Manual microscopic exercise, Department of Medical Biology, Faculty of Medicine in Split,, 2010.
Optional literature:	1. TM Cox: Molecular biology in medicine, Medical Biochemists, Zagreb, 2000. 2. Specially prepared manuscripts for seminars and exercises
Additional information about the course	www.mef.sve-mo.ba

Annexes: calendar classes

The number of teaching units	TOPICS AND LITERATURE
I.	Title: Cell Biology and Medicine.
	Short description: structure and function of cells. Prokaryotes vs. Eukaryote. The cell chemistry. Macromolecules.
	Literature: mandatory and additional
II.	Title: Nucleic Acids DNA
	Short description: Deoxyribonucleic acid, structure, replication and DNA repair.
	Literature: mandatory and additional
III.	Title: Nucleic acid-RNA
	Short description: ribonucleic acid-RNA. Transcription and regulation of transcription.
	Literature: mandatory and additional
IV.	Title: Nucleus and genome organization
	Short description: The core of the structure and function of the nucleus and nucleoli. Transportation to / from the nucleus. The organization and reshuffling of the genome.
	Literature: mandatory and additional
V.	Title: From DNA to proteins
	Short description: From DNA to protein. Genetic code. Translation. Protein sorting and transport. ER, Golgi apparatus and lysosomes. Vesicular transport.
	Literature: mandatory and additional
VI.	Title: Membrane-structure and transport through the membrane
	Short description: The structure of cell membranes. Transport of substances through the membrane and endocytosis.
	Literature: mandatory and additional
VII.	Title: Bioenergetics and metabolism.
	Short description: The function and structure of mitochondria and peroxisomes.
	Literature: mandatory and additional
VIII.	Title: Cytoskeleton and intercellular substance.
	Short decription: The cytoskeleton and cell movement, extracellular matrix and intercellular connections.
	Literature: mandatory and additional
IX.	Title: Cell signaling.
	Short description: Signal transduction in the cell. Stem cells and apoptosis.
	Literature: mandatory and additional
X.	Title: Cell cycle. Cancer. Molecular genetics of tumors.
	Short description: Cell cycle, basics of molecular biology and genetics of tumors.
	Literature: mandatory and additional

XI.	Title: Fundamentals of Medical Genetics
	Short description: Classical and molecular genetics. Autosomal recessive and dominant human diseases. Monogenic and polygenic diseases. Linked genes and gene recombination.
	Literature: mandatory and additional
XII.	Title: Sexual-linked inheritance.
	Short description: Inheritance of sex and sex-linked inheritance.
	Literature: mandatory and additional
XII.	Title: Mutations
	Short description: Chromosomal and genetic mutations. Mutations and human health
	Literature: mandatory and additional
XIV.	Title: Cytogenetics and cariogram
	Short description: The process of obtaining and analyzing cariogram. G-banding and FISH.
	Literature: mandatory and additional
XV.	Title: Analysis of DNA
	Short description: solubilization, isolation, separation and visualization of DNA. Gel electrophoresis. Restriction enzymes. The plasmids and recombinant DNA technology. The application of recombinant DNA in medicine. Cloning. Genetically modified organisms. PCR. Sequencing. DNA and RNA microchips
	Literature: mandatory and additional
XVI.	Title: Analysis of protein
	Short description: solubilization, isolation, separation and visualization of proteins. Electrophoresis (SDS-PAGE), Commasie blu and Ponso S With meted. Western blot. Microarray. ELISA, flow cytometry. Production of monoclonal antibodies.
	Literature: supplementary.
XVII.	Title: Tools of cell biology.
	Description: Microscopes and microscopy. Fractionation of cells, cell culture, cell separation by centrifugation.
	Literature: supplementary.

Name of the Course	**Scientific Methodology and Medical Informatics**			**Code**	
Study program Cycle	Integrated Study Program, Medicine			**Year of study**	I
ECTS:	**8,5**	*Semester*	I	Hours in semester (L+S+E)	100 (24+46+30)
Status:	mandatory	*Precondtions:*		*Comparative conditions:*	
Course attendance:	First year students			*Time schedule*:	According to schedule

Course teacher:	Professor Zoran Đogaš, MD
Consultations:	According to schedule
E-mail address and phone number:	zdogas@gmail.com, 00385 21 557 858
Assistant	Professor Jadranka Božikov, MD Assistant Professor. Lada Zibar, MD Assistant Professor Renata Pecotić, MD Professor Maja Valić, MD Linda Lušić Kalcina, MS Ivana Pavlinac Dodig, MD, PhD Josip Lesko, dr med
Consultation:	According to schedule
E-mail address and phone number:	linda.lusic@mefst.hr

Aims of the Course:	The aim of the course is to enable students in acquiring 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 ie. lifelong learning) using the results of scientific research studies A further 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)

Learning outcomes (general and specific competences):	General outcomes: Students should be able to plan their learning during the study independently, through the use of critical and self-critical questioning of scientific truths with the appropriate use of medical information in available web databases. Students should be able to demonstrate individual qualities of their personality (teamwork and individual contribution, interest, active listening and building positive relationships with team members). Specific outcomes: During the course, students will develop the following specific competences through the performance of all segments of the research they are conducting: - recognition of the type of study - coding and storage of dana - determination of the normality of data distribution - statistical analysis of dana (parametric and nonparametric) - deciding on the use of the required statistical tests - adaptation of statistical processing of study design - presentation of research results using tabular and graphic representations (MS Word, MS Excel, other statistical programs) - writing the complete scientific paper with all necessary parts - public presentation of the results of the research conducted - poster presentations Students should adopt the scientific way of thinking, acquire knowledge on the types of scientific research, be able to search for medical information in various index publications and databases, get acquainted with the collection of scientific articles and the possibilities of presenting data at scientific conferences and in scientific articles, they should participate in planning and performing their own scientific research using basic knowledge of medical informatics and biostatistics.
Syllabus Content (brief summary):	Teaching consists of lectures, seminars and exercises, while the focus of the course stays on the practical exercises and conducting students' own research (50% of teaching) where each student must work in a team (small group) on a particular problem of research with the supervision of the professors during the practicals and the course Head professor.

Format of instructions (label using bold option)	**Lectures**	**Exercises**	**Seminars**	**Independent assignments**
	Consultations	**Mentor work**	**Practical training**	Other
	Notes:			
Students responsibilities	Students are obligated to attend all types of classes (20% of justified absence is allowed); students are obligated to perform colloquium for all seminars and exercises that they were absent.			
Grading and evaluating student work in class and at the final exam (label using bold option)	**Class attendance**	**Class activities**	**Seminar work**	**Practical work**
	Oral exam	**Written test**	**Continuous knowledge assessment**	Essay

Name the proportion of ECTS credits *for each activity so that the total number of ECTS credits is equal to the ECTS value of the course*

Hours (estimation)	**Hours (estimation)**	**Hours (estimation)**	**Hours (estimation)**
Class attendance and class activity	30	1	10%
Seminar work	60	2	20%
Colloqium (2) or Written test	165	5.5	70%
Oral exam			

Additional clarifications:

The exam consists of making students own scientific work in the section of scientific methodology and the preparation of a seminar in which students will be able to demonstrate IT knowledge for the section of medical informatics.

Additional explanation:

According to the Rules of studying final grade is appointed 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)
E = 0 to 54% 1 (failed)

Required literature (available in the library and via other media)	1. Marušić M, editor. Introduction to scientific work in medicine. 4th edition. Zagreb: Medicinska naklada; 2008

Optional literature (at the time of submission of study programme proposal)	Selected scientific papers Learning materials available online: http://www.mefmo.ba/eucenje/claroline/course/index.php?cid=ZM
Other (as the proposer wishes to add)	Student Survey Analysis of the quality of teaching by students and teachers Analysis of the number of students passing the exams Report of the Office for Quality of Teaching Out-of-institutional Evaluation (Visitation of the Quality Control Teams)

Appendix: Time schedule

Thematicall session	**Subjects and literature**
I.	Lecture title: The science of Medicine - introductory lecture
	Brief description: Introduction to the scientific field of (bio)medicine, through a description of the fundamental role of science in medical procedures and methodology used to ensure that all medical procedures are evidence based.
	Literature: Mandatory literature.
II.	Lecture title: Scientific research
	Brief description: Establishing the sequence of procedures in scientific research, type of measurement and defining research plan. Description of different forms of data entry and data processing depending on the type of research. Seminars: Types of scientific research, planning Types of scientific research, measurement
	Literature: Mandatory literature.
III.	Lecture title: Scientific information
	Brief Description: Using specific examples lecturer should identify which sources of bibliographic information are used, electronic journals and books used in contemporary medicine, and identify other sources of medical information on the web, as well as point out the need for critical judgment of medical information on the Internet.

	Literature: Mandatory literature.
IV.	Lecture title: Scientific work
	Brief description: Description and comparison of all forms of scientific work applying various scientific methods in research and revealing unknown facts and theories, thus contributing to the increase of scientific knowledge in a specific area. Seminars: The planning of scientific research and determination of topics by individual groups of students.
	Literature: Mandatory literature.
V.	Lecture title: Science and clinical / preclinical medicine
	Brief description: The importance of science in providing the right care for patients in clinical medicine, as well as in the determination of research methods and methods in the area of preclinical medicine. The need for scientific information is mostly related to the diagnosis of a medical problem, the planning of the therapeutic procedure and its implementation. Seminars: The use of bibliographic sources and their search strategies Scientific article in medicine The plan of preparing an original scientific paper (instructions for authors, mentor agreement) Communication Skills in Scientific Research
	Literature: Mandatory literature.
VI.	Lecture title: Basics of statistical conclusion
	Brief description: The ultimate goal of research is a decision that is made based on the performance of statistical analysis. The statistical conclusion should be based on a properly set research problem, correct research methods, suitably selected statistical tests and their interpretation. Seminars: Writing your own scientific paper Presenting your own scientific findings (Oral Presentation with PowerPoint Presentation and Poster Presentation)
	Literature: Mandatory literature.

VII.	Lecture title: The concept and the assignments of medical informatics
	Brief description: Informational aspect of the biomedical research, and its role in medical, health and scientific research. Seminars: The concept and assignments in medical informatics; Medical informatics terminology; Data types - Students are introduced to the concepts of medical informatics and the data attributes (entity, attribute, attribute values, data, notifications, data operations) and data types (analogue, digital) Preparation of the final seminar - Students should prepare a seminar on the topic defined with the teacher. Presentation of seminar work results - Students need to prepare a presentation of their assignments using PowerPoint presentations Practicals: 1. Data types (analog, digital) 2. Personal computers and scientific work 3. Working with MS Access I 4. Working with MS Access II
	Literature: Mandatory literature. Learning materials available online at: http://www.mefmo.ba/eucenje/claroline/course/index.php?cid=ZM
VIII.	Lecture title: Medical information
	Brief description: Storing, searching, exchanging and optimizing the use of biomedical information, data and knowledge neccessary for problem solving and decision making. Practicals: 9. Program for tabular computing and graphic presentation of data (MS Excel) I 10. Program for tabular computing and graphic presentation of data (MS Excel) II 11. Directly loading images and scanning of image, simple image processing (MS Office Picture Manager and Paint software) 12. Word Formatting Program (MS Word) I 13. Word Formatting Program (MS Word) II 14. Using the MS Power Point program 15. Using electronic mail in scientific communication
	Literature: Mandatory literature.

IX.	Lecture title: ICT in Biomedicine and healthcare
	Brief description: Students should prepare the examples from the practicals and, in accordance with the presentation in this topic, discuss the examples at the seminar. Seminars: Application of ICT in Medicine and Health; Health Informatization Practical: 5. Application of ICT in Medicine and Health; Health Informatization
	Literature: Mandatory literature. Learning materials available online at: http://www.mefmo.ba/eucenje/claroline/course/index.php?cid=ZM
X.	Lecture title: Medical information available online
	Brief Description: Students get an example of a presentation from the literature or from the web and discuss it with colleagues Seminars: Presentation and discussion of medical informational examples from the literature and the medical practice Practical: 6.World Wide Web I 7.World Wide Web II
	Literature: Mandatory literature. Learning materials available online at: http://www.mefmo.ba/eucenje/claroline/course/index.php?cid=ZM
XI.	Lecture title: Index publications and access to the publications
	Brief description: Introducing current index publications and search options for index publications through search databases. Practical: 8. Searching for bibliographic databases and other databases (PubMed, PubMed Central, Cochrane, etc.): rules in searching databases and introducing the nomenclatures and classification in MeSH (Medical Subject Headings – MeSH, Subheadings)
	Literature: Mandatory literature. Learning materials available online at: http://www.mefmo.ba/eucenje/claroline/course/index.php?cid=ZM

Name of the course	**Anatomy**			**Code**	
Type of study program Cycle	Integrated Study Program, Medicine			**Year of study**	I
Credits (ECTS) :	**18**	*Semester*	II	Number of hours per semester (l+e+s)	210 (60+88+62)
Status of the course:	mandatory	*Preconditions:*		*Comparative conditions:*	/
Access to course:	First year students			*Hours of instructions*:	According to schedule

Course teacher:	Professor Ljerka Ostojić, MD, PhD Professor Zdenko Ostojić, MD, PhD Professor Ivan Vinter, MD, PhD Professor Dragica Bobinac, MD, PhD Professor Ivana Marić, MD, PhD
Consultations:	As agreed with students
E-mail address and phone number:	ljerka.ostojic@sve-mo.ba
Associate teachers	Pejana Rastović, MD Marko Ostojić, MD, PhD Josip Lesko, MD Josip Novaković, MD, PhD Josip Mišković, MD, PhD Zdenka Zovko, BSc MLD
Consultations:	As agreed with students
E-mail address and phone number:	

The aims of the course:	The aims of the course are: To remember the build of the human body. To provide students to acquire knowledge about the structure of the human body through systemic and topographic anatomy and in that way prepare them for understanding the normal and pathological human morphology, relation between surface shape and inner structures as well as the synthesis between the two as a part of the life cycle. Clinical importance of each region and spacial orientation within the human body. Thorough understanding of the systemic, functional and topographic anatomy of all regions, as well as functional anatomy of the locomotor system, cardiovascular, respiratory, digestive, urinary, reproductive, peripheral nerve including the main organization of the motor and sensory units.

<table>
<tr><td></td><td colspan="4">System anatomy: organ characteristics, their irrigation and innervation. According to this approach the organs are grouped by their common function. General anatomical principles are accentuated in this approach for the understanding of the build and function of the human body. Topographic anatomy: organ characteristics according to their placement in the body and interaction with nearby structures. All organs belong to a certain system and anatomical region.</td></tr>
<tr><td>Learning outcomes (general and specific competences):</td><td colspan="4">General outcomes
• Applying the independent learning through the study in the way of critical and self-critical questioning of scientific truth.
• Remembering the possession of personal qualities such as teamwork and personal contribution to it, attentiveness, active listening and positive team building.

Specific outcomes
• Applying the knowledge of: the human build, basic theoretic setting of the systemic and topographic anatomy, shape and build of the organs of each system, holotpic, skeletotopic and syntotopic relations of the organs regardless of the system they belong to.
• Applying the skills of anatomical dissection.
• Remembering the normal macromorphology of the human.
• Remembering and evaluation of the organ systems and regions of the human body.
• Remembering the details of all anatomical specimens.

The outcomes will be evaluated through continuous tests, active forms of studying during lectures and seminars, and in final exam.</td></tr>
<tr><td>Course content (Syllabus):</td><td colspan="4">The Anatomy course consists of 38 units, everyday 10 minute test, continuous testing throughout the exercises, and three partial tests. Every thematic unit consists of 2-3 hours of lectures, 2-3 hours of seminars and 2-3 hours of exercises.</td></tr>
<tr><td rowspan="3">Format of instruction (mark in bold)</td><td>Lectures</td><td>Exercises</td><td>Seminars</td><td>Independent assignments</td></tr>
<tr><td>Consultations</td><td>Work with mentor</td><td>Field work</td><td>Other</td></tr>
<tr><td colspan="4">Remarks: the class in each unit starts with a lecture, followed by seminars and exercises, completed by daily test. In seminars students analyze clinical examples and interactively evaluate previously learned material. During exercises students spend time in dissection hall alongside with assistants and demonstrators, as well as in computer room where they apply knowledge to complete computer stimulations. Assistants and demonstrators demonstrate the matter on anatomical specimens so that students have an opportunity for active learning. At</td></tr>
</table>

	the end of each unit, students write a 10 minute test which may bring them extra point on the partial exam.			
Student responsibilities	Students must attend the classes it is allowed to miss out 20% of the classes. The final exam; daily 10 minutes test; exercises in the computer room and dissection hall; making up for missed out seminars and exercises in a form of verbal questioning; attendance and active participation in class. The students will be graded according to: • Active participation during seminars and exercises • Daily 10 minute tests • Remembering and evaluation of anatomical specimens in the dissection hall			
Screening student work (mark in bold)	Class attendance	Class participations	Seminar essay	Practical training
	Oral exam	**Written exam**	**Continuous assessment**	Essay

Detailed evaluation within a *European system of points*

STUDENTS RESPONSIBILITIES	**HOURS**	**PROPORTIONS OF ECTS CREDITS**	**PROPORTIONS OF MARK**
Class attendance and participations	30	1	0%
Seminar essay	90	3	20%
Written exam	240	8	50%
Oral exam	180	6	30%

Further clarification:
The exam consists of the written, practical and oral part.

Throughout the entire course a continuous examination is conducted via little 10 minute tests which enable students to achieve additional "bonus" points on partial exams.
The final exam in the Anatomy course consists of written, practical and oral examination. The student takes oral exam after a successful completion of an entire written exam (all three partial exams) and a practical part.
The written exam consists 50% of the grade, oral 30% and practical 20%.
During the course three partial exams will be organized. Successful passage of the partial tests will count as a written part of the exam.

According to the regulations of the study, final grade is obtained:
A = 90 to100% 5
B = 80 to 89% 4
C = 70 to 79% 3
D = 60 to 69% 2
F = 0 to 59% 1

<u>Written part:</u>

Total number of questions: 150 (150 minutes)
Total points: 150

Practical part:
The practical part consists of 25 anatomical specimens whose structures are marked and student is required to write the exact name in latin.
Bar: 80% (20 correct answers)

Verbal exam:
The exam card for the verbal part of the exam has 7 questions according to following regions:

1. Bones, joint and ligaments
2. Muscles and fascia
3. Central nervous system and senses
4. Organs
5. Peripheral and central nerves and autonomous nervous system
6. Blood and lymph vessels
7. Topography and regions

Required literature:	J. Fanghänel, F. Pera, F. Anderhuber, R. Nitsch: Waldeyerova anatomija čovjeka. Golden marketing, Zagreb, 2009. F. Netter: Atlas of Human Anatomy. Elsevier - Health Sciences Division, 2006.
Optional literature:	Jelena Krmpotić-Nemanić: Anatomija čovjeka, Medicinska naklada Zagreb, 1993. J. Sobotta. Atlas anatomije čovjeka, svezak I i II, Naklada Slap, 2007
Additional information about the course	Monitoring methods of teaching quality: • student questionnaire • analysis of the quality both by students and teachers • exam results analysis • report of the office for teaching quality • external evaluation (visit of team for quality control)

Annexes: calendar classes

The number of teaching units	**TOPICS AND LITERATURE**
I.	Title: Bones and joints of the trunk
	Short description: Course organization, anatomical terminology, introduction to osteology, types of joints. Vertebral column, ribs, sternum.
	Literature: required and optional
II.	Title: Bones and joints of the shoulder girdle and the upper limb
	Short description: Biomechanics and clinical significance of structure of bones and joints of the shoulder girdle and the upper limb.
	Literature:
III.	Title:Bones and joints of the upper limb – forearm and hand

	Short description: Biomechanics and clinical significance of structure of bones and joints of forearm and hand. Elbow joint and hand joints.
	Literature:
IV.	Title: Bones and joints of the lower limb – pelvis and hip
	Short description: Upright posture. Biomechanics and clinical significance of bones and joints of pelvis and lower limb. Pelvis and hip joint. Bones and joints of pelvis and thigh.
	Literature:
V.	Title: Bones and joints of the lower limb – knee and foot
	Short description: Biomechanics and clinical significance of bones and joints of lower leg and foot. Knee joint. Bones and joints of lower leg and foot.
	Literature:
VI.	Title: Neurocranium
	Short description: Neurocranium – evolutionary features and clinical significance. Points of orientation on the skull, skull as a whole, joints and sutures of the skull. Bones of the neurocranium, skull base, foramina and canals of the skull.
	Literature:
VII.	Title: Viscerocranium
	Short description: Viscerocranium – evolutionary features and clinical significance. Radiologic anatomy of the skeleton. Bones of viscerocranium, foramina and topographically significant facial regions.
	Literature:
VIII.	Title: Muscles of head and neck
	Short decription: Introduction to miology, shape, parts and insertions of the muscles. Facial muscles, mimics. Muscles of head and neck
	Literature:
IX.	Title: Muscles of thorax, back and shoulder girdle
	Short description: Clinical significance of morphology and structure of the thoracal, back and shoulder muscles. Particularities of structure of muscles of the shoulder girdle. Muscles of thorax, back and shoulders
	Literature:
X.	Title: Muscles of the upper limb
	Short description: Clinical significance of morphology and structure of the muscles of shoulder and arm. Muscles of the upper limb. Demonstrational dissection of muscles of the upper limb.
	Literature:
XI.	Title: Muscles of pelvis and thigh
	Short description: Clinical significance of morphology and structure of muscles of pelvis and thigh, human upright posture, walking. Internal and external pelvic muscles. Demonstrational dissection of muscles of pelvis and thigh.
	Literature:
XII.	Title: Muscles of lower leg and foot

	Short description: Clinical significance of morphology and structure of muscles of lower leg and foot. Muscles of lower leg and foot. Demonstrational dissection of muscles of lower leg and foot.
	Literature:
XIII.	Title: Heart and pulmonary circulation
	Short description: Morphology of heart, blood in pulmonary circulation, clinical significance of structure of blood vessels. Fetal circulation and its impact on structure and function of the cardiovascular system in adults. Heart dissection
	Literature:
XIV.	Title: Systemic circulation
	Short description: Systemic circulation, aorta, system of superior and inferior vena cava, lymphatic system. Clinical methods of blood vessels visualisation. Demonstrational excercises with models – blood vessels of body extremities
	Literature:
XV.	Title: Major divisoin of the nervous system, spinal cord and spinal nerves
	Short description: Organization of the nervous system and clinical significance of the spinal cord, vascularisation and pathways, reflex arc. Autonomic and somatic nervous system.
	Literature:
XVI.	Title: Brainstem and cerebellum
	Short description: Basic structure of brainstem and cerebellum. Fourth ventricle. Dissection of brainstem and cerebellum.
	Literature: required and optional
XVII.	Title: Mesencephalon, diencephalon and cranial nerves
	Short description: Basic structure of mesencephalon, diencephalon and cranial nerve. Dissection of mesencephalon and diencephalon, cranial nerve outlets
	Literature: required and optional
XVIII.	Title: Telencephalon
	Short description: Basic structure of telencephalon. Cortical centres of the brain, ventricular system. Limbic system. Dissection of telencephalon
	Literature: required and optional
XIX.	Title: Blood vessels of brain and spinal cord, cross-sections of the brain
	Short description: Blood vessels of the brain, brain membranes, venous sinuses, frontal and horizontal cross-sections of the brain. Characteristics of blood circulation in central nervous system.
	Literature: required and optional
XX.	Title: Carotid triangle
	Short description: Vagus nerve, truncus sympathicus, accessory nerve. Topographic anatomy (carotid triangle, common carotid artery, internal jugular vein)
	Literature: required and optional
XXI.	Title: Lateral cervical region
	Short description: Subclavian artery and vein, cervical plexus, brachial plexus. Topographic anatomy of the lateral cervical region.
	Literature: required and optional

XXII.	Title: Orbit
	Short description: Palpebral region. Innervation and vascularisation of the orbit. Orbit and its contents, eye globe.
	Literature: required and optional
XXIII.	Title: Temporal bone
	Short description: Temporal bone and tympanic cavity. Topographic anatomy of middle and inner ear.
	Literature: required and optional
XXIV.	Title: Parotideomasseteric region and temporomandibular joint
	Short description: Parotideomasseteric region, salivatory glands, temporomandibular joint, anterior facial region. Facial nerve, tympanic nerve, otic ganglion, retromandibular fossa. Mastication muscles, anatomical background of chewing, infratemporal fossa.
	Literature: required and optional
XXV.	Title: Oral cavity
	Short description: Hypoglossal nerve, glossopharingeal nerve, submandibular ganglion. Teeth, tongue, muscles of oral cavity, mandibular nerve, hard and soft palate.
	Literature: required and optional
XXVI.	Title: Pharynx
	Short description: Pharynx and parapharingeal space. Clinical significance of structure of the pharynx. Vagal nerve, glossopharyngeal nerve, pharyngeal isthmus, pharyngeal lymph tissue
	Literature: required and optional
XXVII.	Title: Nose and paranasal sinuses
	Short description: Nose and paranasal sinuses, anterior facial region, pterygopalatine ganglion, maxillary nerve, innervation and vascularization of nose and paranasal sinuses. Topographic anatomy of nose and nasal cavity.
	Literature: required and optional
XXVIII.	Title: Topographic anatomy of abdomen I
	Short description: Abdominal regions, topographic anatomy of esophagus, stomach and small intestine. Clinical significance of esophagus, stomach and small intestine structure.
	Literature: required and optional
XXIX.	Title: Topographic anatomy of abdomen II
	Short description: Topographic anatomy of colon, liver, pancreas and spleen. Peritoneum development. Surface projection of abdominal organs.
	Literature: required and optional
XXX.	Title: Topographic anatomy of retroperitoneum
	Short description: Kidney, kidney membranes, ureter, bladder. Inguinal canal. Topographic anatomy of retroperitoneum.
	Literature: required and optional
XXXI.	Title: Topographic anatomy of upper limb I
	Short description: Topographic anatomy of shoulder and upper arm. Clinical significance of shoulder and upper arm topography. Axillary fossa, upper arm and cubital fossa.

	Literature: required and optional
XXXII.	Title: Topographic anatomy of upper limb II
	Short description: Topographic anatomy of forearm and hand. Clinical significance of forearm and hand topography. Forearm and hand.
	Literature: required and optional
XXXIII.	Title: Larynx, trachea and bronchi
	Short description: Larynx, trachea and bronchi (pectoral region, mamma). Clinical significance of the voicebox build for fonation and the intersection of the respiratory and digestive system. Jugular fossa, median neck region (laryngea, thyroidea, trachealis).
	Literature: required and optional
XXXIV.	Title: Lungs and mediastinum
	Short description: Topographic anatomy of the lungs and sufrace projectionsto the thoracic wall. Clinical significance of the lung anatomy and topographic relations in the chest. Lungs and pleura, mediastinum.
	Literature: required and optional
XXXV.	Title: Topgraphic anatomy of the male pelvic floor
	Short description: Topgraphic anatomy of the male pelvic floor.Clinical significance of the male reproductive organs – hernia of the ingunial region. Scrotum, testis and spermatic funiculus, inguinal canal.
	Literature: required and optional
XXXVI.	Title: Topgraphic anatomy of the female pelvic floor.
	Short description: Topgraphic anatomy of the female pelvic floor. Clinical significance of the female reproductive organs. The location of the uterus, uterine ligaments, and the location of ovaries. Pelvic diaphragm.
	Literature: required and optional
XXXVII.	Title: Topographic anatomy of the lower limb I.
	Short description: Topographic anatomy of the gluteal region and upper leg. Clinical significance of the topographic relations regarding femoral trigonum and adductor canal. Gluteal region and upper leg.
	Literature: required and optional
XXXVIII.	Title: Topographic anatomy of the lower limb II.
	Short description: Topographic anatomy of the lower leg and the foot. Clinical significance in the topographic relation inside poplietal fossa. Lower leg and the foot.
	Literature: required and optional

Name of the course	**Medical Chemistry**	**Code**	
Type of study program Cycle	Integrated Study Program, Medicine	**Year of study**	II

Credits (ECTS) :	**7,5**	*Semester*	II	Number of hours per semester (l+e+s)	80 (24+26+30)
Status of the course:	Mandatory	*Preconditions:*		*Comparative conditions:*	
Access to course:	First year students			*Hours of instructions*:	According to schedule
Course teacher:	Professor Zora Pilić Assistant professor Ilijana Odak Professor Mladen Biruš				
Consultations:	As agreed				
E-mail address and phone number:	zpilic@sve-mo.ba				
Associate teachers:	Nevenka Jelić Knezović Kristina Landeka				
Consultations:	As agreed				
E-mail address and phone number:	nevenka.jelic@sve-mo.ba; 063890188				
The aims of the course:	The objectives of this course are: To introduce students with basic knowledge of inorganic, organic and physical chemistry necessary for understanding the human body. To apply the basic principles of molecular logic of biochemical processes in a living organism; To understand dynamics of the synthesis and degradation of natural bio-macromolecules: proteins, polysaccharides, lipids and nucleic acids. To analyze important factors that influence the dynamics of cell metabolism and the principles of its regulation and control. Furthermore, to introduce students with the characteristics of certain biochemical markers and their relationship with the function of major organ systems. To understand how the body works at the molecular level, which is reflected in the normal function of the body as well as pathobiochemical processes in the body. The acquired knowledge and skills provide a biochemical basis for understanding the senior year subjects such as: physiology, pathophysiology, pharmacology, internal medicine.				

<table>
<tr><td>Learning outcomes (general and specific competences):</td><td colspan="4">General Outcomes:
• Applying the independent learning, critical thinking and scientific facts through active listening, work and positive relationships building with members of the group / team.

Specific outcomes:
• The critical and rational evaluation of the facts about the molecular composition, purpose and dynamics of macromolecular structures in living cells, the molecular logic of biochemical processes in a living organism, the dynamics of the synthesis and degradation of natural macromolecules, proteins, polysaccharides, lipids, nucleic acids.
• Understanding the basic principles of cell metabolism as well as the principles of its regulation and control.</td></tr>
<tr><td>Course content (Syllabus):</td><td colspan="4">The program consists of two parts: physical and organic chemistry ; 2 Continuous assessment (examination of stoichiometry, organic chemistry, 2 partial exams and final exam.</td></tr>
<tr><td rowspan="3">Format of instruction (mark in bold)</td><td>Lectures</td><td>Exercises</td><td>Seminars</td><td>Independent assignments</td></tr>
<tr><td>Consultations</td><td>Work with Mentor</td><td>Field work</td><td>Other</td></tr>
<tr><td colspan="4">Notes: The teacher presents the theoretical material. Students independently scrutinize the assigned topic related to the issues of appropriate teaching units in the form of power-point presentations.</td></tr>
<tr><td>Student responsibilities</td><td colspan="4">The final exam, 2 continuous assessments, practical part of the output colloquium, attendance and participation in class, especially in problem solving during the seminar</td></tr>
<tr><td rowspan="2">Screening student work (mark in bold)</td><td>Class attendance</td><td>Class participations</td><td>Seminar essay</td><td>Practical training</td></tr>
<tr><td>Oral exam</td><td>Written exam</td><td>Continous assesment</td><td>Essay</td></tr>
</table>

Detailed evaluation within a *European system of points*			
STUDENTS RESPONSIBILITIES	**HOURS**	**PROPORTIONS OF ECTS CREDITS**	**PROPORTION S OF MARK**
Class attendance and participations	24	1	15%
Continuous assessment of knowledge (2x)	30	1	15%
Practical part of the output colloquium	35	1,5	20%
Written exam	80	4	50%

Additional explanations:
Since this is a basic course in a specific area of physical and organic chemistry, in addition to lectures, the processing of selected variety of seminar topics and solving tasks helps students to extend their knowledge and to show ability to think critically and to recognize the essential elements of a certain educational issues.
In the final assessment, results of the final examination are included, as well as the activity during lectures, activities on practical training and success in the continuous assessment. For the exam access student is required to make all the other aforementioned obligations.

Students have the option of the continuous assessment in stechiometry and organic chemistry to win a maximum of 10 points, which are added to the first partial exam in chemistry.
The exam is written.
Students who achieve a total minimum of 55% of points on preliminary exams are freed of the final exam.
Final exam and regular examination periods: To pass (on the final exam or regular examination period) student should achieve 55% or more points. The unique assessment at the exam is determined on average grade of two tests, continuous assessments (tests),activitiy during all forms of teaching.

According to the Regulations on studying final grade is obtained as follows:
A = 90 to 100% 5 (excellent)
B = 80 to 89% 4 (very good)
C = 70 to 79% 3 (good)
D = 55 to 69% 2 (sufficient)
F = 0 to 59% 1 (insufficient)

Required literature:	For the course Medical Chemistry is necessary: Priručnik za vježbe iz medicinske kemije i biokemije za studente medicine, I. Mikulić, N. Jelić Knezović, V. Mikulić, K. Landeka. Medicinski fakultet, Mostar 2014. a) **Chemistry** 1. Z. Pilić, N. Jelić-Knezović, Odabrana poglavlja fizikalne kemije Interna skripta, Mostar, 2016. 2. Vančik H. Temelji organske kemije, Udžbenici Sveučilišta u Zagrebu, Intelektualne usluge Hrvoj Vančik,Varaždin, 2012. 3. CD power point predavanja iz kemije (ili na: http://www.mefmo.ba) 4. Nastavna štiva. Seminarski zadaci s rješenjima
Optional literature:	a) Chemistry 1. Atkins P, de Paula J. Physical Chemistry, 8th Ed, Oxford University Press, 2006. 2. Filipović I., Lipanović S.: Opća i anorganska kemija I, II, Školska knjiga, Zagreb 1987 3. Bregovec I., Deljac A., Sunko D.: Organska kemija, 9. izdanje, Školska knjiga, Zagreb 1996. 4. Atkins P.W., Clugston M.J.: Načela fizikalne kemije, Školska knjiga, Zagreb 1992 5. J. McMurry. Osnove organske kemije, Medicinski fakultet Sveučilišta u Rijeci, Zrinski d.d., 2014. 6. Pine S. H.: Organska kemija, Školska knjiga Zagreb 1994.

Additional information about the course	Monitoring methods of teaching quality: - student questionnaire - quality analysis by students and teachers - exam results analysis - report of the office for teaching quality - external evaluation (visit of team for quality control)

ANNEXES: Calendar classes

The number of teaching units	**TOPICS AND LITERATURE**
I.	Title: Thermodynamics and thermochemistry.
	Short description: The laws of thermodynamics. The internal energy. Enthalpy. Thermochemical laws. Entropy. Gibbs energy. Energy biological systems. Energy balance of biochemical systems.
	Literature: Pilić Z., Jelić-Knezović N.; teaching materials
II.	Title: Chemical equilibrium.
	Short description: The influence of concentration, temperature and pressure on the chemical balance. The equilibrium constant and Gibbs energy. The reaction of isotherms. The compounds rich with energy. Metastable living system.
	Literature: Pilić Z., Jelić-Knezović N.; teaching materials
III.	Title: Solutions
	Short description: Solutions. Water as the solvent. The distribution of the substance in solution. Electrolytes. The acids and alkalis. Buffers. Colligative properties. The osmotically active particles. Colloid-dispersed systems. Precipitation reactions. Colloids and macromolecules.
	Literature: Pilić Z., Jelić-Knezović N.; teaching materials
IV.	Title: Electrochemistry.
	Short description: Electrode potential and electrochemical cells. Gibbs energy of redox reactions. The biological redox systems.
	Literature:Pilić Z., Jelić-Knezović N.; teaching materials
V.	Title: Chemical kinetics.
	Short description: The speed of reaction. Order and molecularity reaction.
	Factors affecting the rate of reaction. Enzymes. Complex reactions.
	Literature: Pilić Z., Jelić-Knezović N.; teaching materials
VI.	Title: The absorption of light and the photochemical processes.
	Short description: The absorption spectra. Excited molecules. The quantum
	Literature: Pilić Z., Jelić-Knezović N.; teaching materials

VII.	Title: Introduction to Organic Chemistry. Alkanes and cycloalkanes. Stereochemistry.
	Short description: : Chemical bonds. The theory of molecular orbitals. Hybridization. The theory of acids and bases. Physical properties of organic compounds. Classification of organic compounds. The functional groups. Nomenclature. Alkanes, composition, constitution, isomerism. Configuration. Physical Properties. Conformational analysis. Stereoisomers: enantiomers and diastereomers. Chirality. Fisher projection formula. CIP system nomenclature. Optical activity.
	Literature: Vančik H. Temelji organske kemije.
VIII.	Title: Alkenes and alkynes Aromatic compounds.
	Short description: Unsaturated hydrocarbons: alkenes and alkynes, structure and physical properties. E-Z isomerism. Electrophilic addition to alkenes. : Kekule-structure, resonant model and orbital model of benzene. Stability of benzene. Electrophilic aromatic substitution.
	Literature: Vančik H. Temelji organske kemije.
IX.	Title: The alkyl halides. Alcohols, ethers, thiols, sulfides. Aldehydes and ketones.
	Short description: Nucleophilic substitution at saturated carbon. Elimination reactions. Classification and physical properties of alcohol. Acidity strength. Disqualifying and susptitucijske reactions. Oxidation alkoholaBiološki important alcohols and phenols. Ethers and epoksidi.Tioli and sulphides. The nature of the carbonyl group. The nucleophilic addition to the carbonyl group. Oxidation and reduction of carbonyl compounds.
	Literature: Vančik H. Temelji organske kemije.
X.	Title: Amines. Heterocyclic compounds. Carboxylic acid and derivatives.
	Short description: Amines: structure and physical properties. Basicity of the amine. Heterocyclic compounds. a carboxyl group. Physical Properties. The acidity of the carboxylic acid. Synthesis of carboxylic acids. The carboxylic acid derivatives. Nucleophilic acyl substitution. Esther. Acid anhydrides. Acid chlorides. Amides.
	Literature: Vančik H. Temelji organske kemije.
XI.	Title: Carbohydrates. Nucleosides, nucleotides and nucleic acids. Amino acids and proteins. Lipids.
	Short description: Carbohydrates. 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. Amino acids. Relative configuration. Zwitterion. Amino acid synthesis. Peptide bond. Connecting peptide chains. Proteins. Primary, secondary, tertiary and quaternary structure of proteins. Enzymes. Lipids. Waxes. Fats and oils. Saturated and unsaturated fatty acids. Phospholipids. Sphingolipids. Prostaglandin. Terpenes. Steroids.
	Literature: Vančik H. Temelji organske kemije.

Name of the course	**Medical Ethics and Bioetichs**			**Code**	
Type of study program Cycle	Integrated Study Program, Medicine			**Year of study**	I
Credits (ECTS) :	**1,5**	*Semester*	II	Number of hours per semester (l+e+s)	45 (20+0+25)
Status of the course:	mandatory	*Preconditions:*	passed all exams from the previous year	*Comparative conditions:*	
Access to course:	First year students			*Hours of instructions*:	According to schedule

Course teacher:	Assistant professor Ivo Curic, MD, PhD
Consultations:	Thursdays 12-13 h or by appointment
E-mail address and phone number:	snjezanacu@yahoo.com ; 387 63 790 031
Associate teachers	Helien Bebek-Ivanković, MD, MSc
Consultations:	
E-mail address and phone number:	

The aims of the course:	The aim of this course is to familiarize students with basic principles of ethics, medical ethics and medical deontology both in peace and war. Also, the aim of this course is to enable the students of medicine to acquire knowledge that will be able to apply later in personal decision-making as well as looking for the sense and happiness of their own existence.
Learning outcomes (general and specific competences):	General Outcomes • Applying the independent learning through the study in the way of critical and self-critical questioning of scientific truth. • Remembering the possession of personal qualities (team work and personal contribution, interest, active listening, and building positive relationships with members of the group). Specific outcomes • Remembering and understanding the most common ethical and medical-ethical declarations, such as: human rights; Lisbon-Rights of the patient; Venetian-the desirable behavior of medical workers during armed conflicts; the Tokyo: on the possible inhumane treatment of medical personnel; Maltese: desirable behavior of medical personnel during the hunger strike.

<table>
<tr><td></td><td colspan="4">

Analyzing and understanding ethical dilemmas related to: medical secret, invocation of conscience, reproductive and transplant medicine, abortion, clinical trials, palliative care, euthanasia and distanasia.
Analyzing the current ethical issues in certain branches of medicine (genetics, gynecology, anesthesiology, psychiatry, infectology, surgery, cardio-pulmonary resuscitation, transplantation and judicial medicine).
Applying the principles of medical deontology through legal legislation (Law on Medicaments - Official Gazette of the Republic of Croatia 121/2003; Law on Rights, Pledges and Responsibilities of the Patients - Official Gazette of the Federation of Bosnia and Herzegovina).
Understanding and applying the Medical Oath, the Code of Medical Ethics and Medical Deontology, as well as declarations relating to state-of-the-art medicine to assist medical students and future doctors in resolving numerous ethical, medical-ethical and deontological problems in various potential life circumstances (everyday practice / life as well as in scientific research work).

The outcomes will be evaluated through interactive teaching, continuous knowledge checking, active learning forms during lecture and seminar sessions, and on the final oral colloquium.
</td></tr>
<tr><td>Course content (Syllabus):</td><td colspan="4">The course Medical ethics and bioethics consists of 21 thematic units to be covered through: 30 lectures and 30 seminars.
After the completion of the class and the conducted survey, a knowledge examination will be conducted through the oral colloquium.</td></tr>
<tr><td rowspan="3">Format of instruction (mark in bold)</td><td>Lectures</td><td>Exercises</td><td>Seminars</td><td>Independent assignments</td></tr>
<tr><td>Consultations</td><td>Work with mentor</td><td>Field work</td><td>Other</td></tr>
<tr><td colspan="4">Notes: Class from each unit begins with lectures and ends with seminars. At the seminars, the teacher presents the problem that is being dealt with, and important elements from the presented issues are discussed by the students in smaller groups. During the consultations the possible ambiguities are being clarified.</td></tr>
<tr><td>Student responsibilities</td><td colspan="4">Attendance and active participation in the classroom and a final colloquium that is oral in nature.
If needed, some students would also do the essay.
Students will be evaluated on the basis of: attending classes, active participation in lectures, seminars, consultations, and where appropriate the quality of the essay.</td></tr>
</table>

Screening student work (mark in bold)	**Class attendance**	**Class participations**	**Seminar essay**	Practical training
	Oral exam	Written exam	**Continous assesment**	**Essay (if needed)**

Detailed evaluation within a *European system of points*

STUDENTS RESPONSIBILITIES	**HOURS**	**PROPORTIONS OF ECTS CREDITS**	**PROPORTIONS OF MARK**
Class attendance and participations	10	0,25	5%
Seminar essay	10	0,25	5%
Written exam	-	-	-
Oral exam	30	1,0	90%

Required literature:	1. Ferenčić Fatović S, Tucak S, ur. Medical ethics. Zagreb: Medicinska naklada; 2011. 2. Zurak N. Medical ethics. Zagreb: Merkur, 2007. 3. Valet V. Bioethics. Sarajevo-Zagreb: Light words; 2004th 4. Zecevic D, et al. Judicial Medicine and Deontology. Zagreb: Medicinska naklada. 2004th 5. Anonymous. Law on the Rights, Obligations and Responsibilities of Patients. Sarajevo: Official Gazette of the Federation of Bosnia and Herzegovina, No. 40 of 14 July; 2010th 6. Anonymous. Criminal Code of the Republic of Croatia: Zagreb: Official Gazette; 2011. 7. Smajkić A, et al. Human rights to life and health. Sarajevo: Focus medical d.d. Sarajevo, 2010. 8. Vasilj U, Erić Lj. O podijeljeni medicinski tajni. Medicine Today 2010; 672-8. 9. Valid V. Bioethics and HIV infection. Bosnia Franciscana 2003; 17: 103-13.
Optional literature:	1. Ćorić A. Ethics and bioethics: thinking at the threshold of a bioethical epoch. Zagreb: Pergamena; 2004th 2. Nenadić MM. Medical ethics. 2nd extended edition. Kosovska Mitrovica: University of Pristina - Faculty of Medicine; 2007th 3. Hand D. The status of human embryo in the view of bioethical multiperspectivism. Zagreb: Pergamena; 2013. 4. Valid V. The human being is from conception. Bosnia Franciscan 1996; 5: 67-77. 5. Passini L. Distinction, when to prolong life. Rijeka: Adamić d.o.o .; 2004 6. Grmek MD, Budak A. Introduction to Medicine. Zagreb: Nakladni zavod Globus; 1996.

	7. Salihbegović E. Medical practice and ethical question. Sarajevo: Ministry of Health of Canton Sarajevo; 2008th 8. Kurjak A. Fetus as a patient. Zagreb: Forward; In 1991. 9. Letica-Cerjan G, Letica S, Babić-Bosanac S, Orešković S. Medical sociology. Zagreb: Medicinska naklada; 2003

Annexes: calendar classes

The number of teaching units	**TOPICS AND LITERATURE**
I.	Title: Human rights and fundamental freedoms. The real patients.
	Short description: General and European declaration on human rights and fundamental freedoms. Declaration of rights of the patient (Lisbon Declaration)
	Literature: mandatory and supplementary
II.	Title: Medical Ethics and Deontology. .
	Short Description: Definition, history, fundamental principles and forms of formation of medical ethics and deontology.
	Literature: mandatory and supplementary
III.	Title: Hippocratic Oath , conscience and appeal of conscience
	Short description: The emergence, significance and reflection of the Hippocratic oaths. Appeal of conscience. Appreciation of conscience through deontological prism (concrete examples)
	Literature: mandatory and supplementary
IV.	Title: Medical ethics in the light of Christian anthropology and some other world religions
	Short Description: The basics of medical ethics in the light of Christian and some other religions. Today's views and dilemmas on the relationship between medicine and religion (eg HIV)
	Literature: mandatory and supplementary
V.	Title: Embryo and fetus status. An exploration of embryos. cloning
	Short description: Gametogenesis, embryo, fetus. Cloning- foundations, history and abuse opportunities. Ethical dilemmas (examples from practice)
	Literature: mandatory and supplementary
VI.	Title: Abortion
	Short description: Definition of abortion and potential medical implications. The stance of different civilizations towards abortion. ethical dilemmas (examples from life)
	Literature: mandatory and supplementary
VII.	Title: Reproductive and perinatal medicine. Supported fertilization.
	Short description: Importance of reproductive and perinatal medicine. Family planning. Current demographic movements. Ethical dilemmas (examples from life).
	Literature: mandatory and supplementary
VIII.	Title: Kindness as an ethical category.

	Short Description: Influence of kindness on quality of success in medical work ethical dilemmas (examples from practice)
	Literature: mandatory and supplementary
IX.	Title: Medical secret. Informed patient. Medical and legal (non) competent patient.
	Short description: Significance of acknowledgment / neglect of medical secrets and the right of patients to be informed. Access to a medical and legal (non) competent patient. Procedures against the will of the patient. Ethical dilemmas (examples from practice)
	Literature: mandatory and supplementary
X.	Title: Immediate medical assistance. psychiatric and radiologically contaminated patients
	Short description: Relationship of a medical practitioner according to said categories of patients. Ethical dilemmas (Excerpts from Practice)
	Literature: mandatory and supplementary
XI.	Title: Infectious Diseases. Vaccination against infectious diseases
	Short Description: Significance of infectious diseases in the past and now. Epidemiological characteristics of infectious diseases. Impact of vaccination on the occurrence of contagious diseases. Global antivax movement. Ethical dilemmas (Excerpts from practice)
	Literature: mandatory and supplementary a
XII.	Title: HIV / AIDS
	Short Description: Global significance, epidemiology with the focus on prevention of stigmatization of HIV-infected people. Ethical dilemmas (Excerpts from Practice).
	Literature: mandatory and supplementary
XII.	Title: Ethics in anesthesiology
	Short description: Significance of anesthesia and proper information of patients from this medical organizational unit. Ethical dilemmas (examples from practice)
	Literature: mandatory and supplementary
XIV.	Title: Cardiac-Pulmonary Resuscitation Ethics
	Brief description The present significance of cardio-pulmonary resuscitation and ethical dilemmas
	Literature: mandatory and supplementary
XV.	Title: Ethics in Transplantation Medicine
	Short Description: Transplantation medicine: History review, significance and ethical dilemma (Practical Examples)
	Literature: mandatory and supplementary
XVI.	Title: Ethics Committees, Helsinki Declaration
	Short description: The way of forming and working of various ethics committees. Explanation of terms: test plan, examiner, observer, examinee and control group. Clarification of the Helsinki Declaration (Ethical importance and practical application in biomedical research). Significance and abilities of abuse in the work of ethics committees. Ethical dilemmas (examples from practice)

	Literature: mandatory and supplementary
	Title: Palliative Care
	Short description: Significance of palliative care today. The palliative care team. Ethical dilemmas (examples from practice)
	Literature: compulsory and supplementary

Name of the course	**Croatian Language I**				**Code**	
Type of study program Cycle	Integrated study program, Medicine				**Year of study**	I
Credits (ECTS) :	**0**	*Semester*	II		Number of hours per semester (l+e+s)	30 (0+30+0)
Status of the course:	required	*Preconditions:*	none	*Comparative conditions:*		
Access to course:	First year students			*Hours of instructions*:		According to schedule
Course teacher:	Ivana Miloš, professor					
Consultations:	Mondays and Thursdays from 12 to 13 or according to the deal					
E-mail address and phone number:	ivana.milos@mef.sum.ba					
The aims of the course:	The aims of this course is to introduce students Croatian language so that they can communicate with patients when they arrive at clinical years.					
Learning outcomes (general and specific competences):	Listening: students should understand common phrases in spoken language. Reading: students should be capable reading short sentences and texts. Speaking: students should communicate using short sentences. Writing: students should be able to write simple sentences.					
Course content (Syllabus):	Introductory explanation of grammatical forms, introduction of basic vocabulary (10 hours). Listening, reading, speaking and writing of simple sentences (50 hours).					
Format of instruction (mark in bold)	Lectures	Exercises	**Seminars**	**Independent assignments**		
	Consultations	Work with mentor	Field work	Other		

	Remarks: In accordance to Rules of studying			
Student responsibilities	Final exam, tests, attendance and participation in class. Students will be evaluated based on: • Active participation in seminars.			
Screening student work (mark in bold)	Class attendance	Class participations	Seminar essay	Practical training
	Oral exam	**Written exam**	Continous assesment	Essay

Detailed evaluation within a *European system of points*

STUDENTS RESPONSIBILITIES	**HOURS**	**PROPORTIONS OF ECTS CREDITS**	**PROPORTIONS OF MARK**
Class attendance and participations	60	0	
Seminar essay	10	0	
Written exam	10	0	100%
Oral exam	0	0	

Further clarification:
Exam is written
According to the regulations of the study, final grade is obtained:
A = 91-100% 5
B = 79 to 90% 4
C = 67 to 78% 3
D = 55 to 66% 2
F = 0 to 54% 1

Required literature:	1. Cvikić, L. i Bošnjak, M. (2012). Hrvatski u malome prstu. Hrvatsko filološko društvo.,Zagreb. 2. Čilaš M., Gulešić-Machata, M., Pasini, D., Udier, S. L. (2006). Hrvatski za početnike. Hrvatska sveučilišna naklada, Zagreb. 3. Vidan, A. & Neigbuhr, R. (2009). Beginner's Croatian. Hypocrene Books. New York.
Optional literature:	1. C. Hawkesworth (2003). Colloquial Croatian with CDs. Routledge. 2. Vinko Grubišić (1994). Elementary Croatian. CIC, Zagreb.
Additional information about the course	Methods of monitoring the quality of teaching: student survey Quality control analysis by the students and teachers Analysis of passing the exams The report of the Office for the quality of teaching

Name of the course	**Physical Education I**	**Code**	

Type of study program Cycle	Integrated study program, medicine				**Year of study**	I and II
Credits (ECTS) :	**0**	*Semester*	II		Number of hours per semester (l+e+s)	30 (1 year) 30 (2 year) (0+60+0)
Status of the course:	required	*Preconditions:*	none	*Comparative conditions:*		
Access to course:	First year students			*Hours of instructions*:		According to schedule
Course teacher:	Mladen Kvesić, professor					
Consultations:	Mondays and Thursdays from 12 to 13 or according to the deal					
E-mail address and phone number:	036335600					
The aims of the course:	The aim of the course is to raise the awareness in students about the importance of exercise and healthy lifestyle and to achieve and maintain optimum physical activity.					
Learning outcomes (general and specific competences):	Developing the motorical skills. Achiving the optimum physical activity. Applying the healthy lifestyle habbits.					
Course content (Syllabus):	The course is conducted through 30 hours of excersises during which student are provided with different activities such as athletics, basketball, wolleyball, football. Adjusted program for students with special needs.					
Format of instruction (mark in bold)	Lectures	**Exercises**	Seminars	Independent assignments		
	Consultations	Work with mentor	Field work	Other		
	Remarks: In accordance to Rules of studying					
Student responsibilities	Students are required to attend classes on schedule and to actively participate in exercises.					
Screening student work (mark in bold)	Class attendance	Class participations	Seminar essay	**Practical training**		
	Oral exam	**Written exam**	Continous assesment	Essay		

Detailed evaluation within a *European system of points*

STUDENTS RESPONSIBILITIES	**HOURS**	**PROPORTIONS OF ECTS CREDITS**	**PROPORTIONS OF MARK**

Class attendance and participations	60	0	
Seminar essay	10	0	
Written exam	10	0	100%
Oral exam	0	0	

Further clarification:
Exam is written
According to the regulations of the study, final grade is obtained:
A = 91-100% 5
B = 79 to 90% 4
C = 67 to 78% 3
D = 55 to 66% 2
F = 0 to 54% 1

Required literature:	1. Mišigoj Duraković M. Physical Activity and Health. Zagreb, Faculty of Kinesiology; 1999
Optional literature:	
Additional information about the course	Methods of monitoring the quality of teaching: student survey Quality control analysis by the students and teachers Analysis of passing the exams The report of the Office for the quality of teaching

Annexes: calendar classes

2nd Year of Study

Name of the course	**Histology and Embryology**			**Code**	
Type of study program Cycle	Integrated study program, Medicine			**Year of study**	II
Credits (ECTS) :	**10**	*Semester*	III	Number of hours per semester (l+e+s)	135 (50+41+44)
Status of the course:	mandatory	*Preconditions:*	Passed all the exams of the 1st year	*Comparative conditions:*	
Access to course:	Second year students			*Hours of instructions*:	According to schedule

Course teacher:	Associate professor Katarina Vukojević, MD, PhD
Consultations:	Mondays and Thursdays from 9 to 10 or according to the deal
E-mail address and phone number:	katarina.vukojevic@mef.sum.ba

Associate teachers	Associate professor Violeta Šoljić, MD, PhD Andrija Buntić, MD Maja Pivić, MD Jelena Skoko, MD Zdenka Zovko, BSc MLD			
Consultations:	Mondays and Thursdays from 9 to 10 or according to the deal			
E-mail address and phone number:	vsoljic@gmail.com			
The aims of the course:	The objectives of this course are: to introduce medical students with basic facts about human development, to synthesize the knowledge about the microscopic structure and function of human tissues that build organs and tissues in the human body.			
Learning outcomes (general and specific competences):	General outcomes: Applying the independent learning through the study in the way of critical and self-critical questioning of scientific truth. Remembering the possession of personal qualities (team work and personal contribution, interest, active listening, and building positive relationships with members of the group). Specific outcomes: Understanding the basics of microscopic structure of human body through the microscopic analysis of human tissue and organs preparations. Understanding the normal body structure is the principle on which pathology and pathophysiology are based. Applying knowledge in human embryology helps students in recognizing, treating and preventing disorders of development. Applying the skills in microscopic analysis and recognition of important histological structures of tissues and organs. Understanding the identification and showing details on histological preparations. Outcomes will be evaluated with continuous assessment, quizzes seminars and colloquium exercise and active forms of learning during exercises, lectures and seminars (quizzes for each unit), and the final practical and oral exam.			
Course content (Syllabus):	Course consists of 21 units, 21 quiz-test,assessment in seminars, 21colloquium, assessment on exercises, and two partial test. Each thematic unit includes: 2-3 hours of lectures, 2-3 hours of seminars and 2-3 hours of exercises.			
Format of instruction (mark in bold)	**Lectures**	**Exercises**	**Seminars**	**Independent assignments**

	Consultations	Work with mentor	**Field work**	Other
	Remarks: The teaching of each unit begins with a lecture, followed by seminars and exercises. At the seminars, students receive problem tasks that are analyzed in small groups, at the end of the seminar is a quiz-test, and then students analyze the correct answers with explanations of problems. During exercises students are given preparations which they analyze under microscope and draw, and after that take test on given preparations.			
Student responsibilities	Final exam; Trivia on the seminars; tasks; microscopy; tests; attendance and participation in class. Students will be evaluated based on: • Active participation in seminars and exercises. • Preparation of teaching units for seminars • Read teaching texts and develop their own critical thinking about the material and express those views. • work in small groups • Drawing a microscopic preparation on the exercises			
Screening student work (mark in bold)	**Class attendance**	**Class participations**	**Seminar essay**	**Practical training**
	Oral exam	**Written exam**	**Continous assesment**	Essay

Detailed evaluation within a *European system of points*

STUDENTS RESPONSIBILITIES	**HOURS**	**PROPORTIONS OF ECTS CREDITS**	**PROPORTIONS OF MARK**
Class attendance and participations	15	0,5	0%
Seminar essay	20	0,5	10%
Written exam	120	4	40%
Oral exam	90	3	30%
Practical work	60	2	20%

Further clarification:

Exam is written, quiz, practical and oral.

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. 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).

Passed written tests (which will take place during the exercise) of all teaching units are a prerequisite for taking the partial written exams. Positive mark of preliminary tests are recognized during the current academic year. For students who didn't pass partial tests, written exam makes a single unit of 110 questions and can not be taken separately.
The assessment criteria for written exam: 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.

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);

Quizzes at seminars (10% of the final grade)
After each seminar a written quiz consisting of 10 questions is conducted. The maximum number of points is 210. Correct answers will be evaluated and continuously cumulated, and at the end of the course evaluated. The rating of this form of assessment is:
126-146 = (2);
147-167 = (3);
168-188 = (4);
189-210 = (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 preparations. Students must at least identify 5 of 7 preparations under the microscope, and then have to identify microscopic details on the preparation. The recognition of the preparation is scored (maximum 7 points), showing the required structure to the preparation (maximum 7 points), and finding the required structure to the preparation (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. Final score: The final score is the sum of = complete written (40%) + quizzes in seminars (10%) + practical (20%) + oral (30%) exam. According to the regulations of the study, final grade is obtained: A = 91-100% 5 B = 79 to 90% 4 C = 67 to 78% 3 D = 55 to 66% 2 F = 0 to 54% 1	
Required literature:	Junqueira LC, Carneiro J, Kelley RO. Basics of Histology. Zagreb: Školska knjiga; 2005. Sadler TW. Medical embryology. 10th edition, Zagreb: Školska knjiga; 2008. Vukojević K, Šoljić V. Practicum from Histology and embryology. 1st edition, Mostar: Medicinski fakultet; 2015
Optional literature:	Durst-Živković B. Practicum of Histology. Zagreb: Školska knjiga; 1998. VMS imagecollection: Histology Atlas, 2008.
Additional information about the course	Monitoring methods of teaching quality: - student questionnaire - quality analysis by students and teachers - exam results analysis - report of the office for teaching quality - external evaluation (visit of team for quality control)

Annexes: calendar classes

The number of teaching units	**TOPICS AND LITERATURE**
I.	Title: General embryology 1

	Short description: Gametogenesis, the first and second week of development. Menstrual, ovarian cycle and fertilization. Preparing preparations for histology
	Literature: required and optional
II.	Title: General embryology 2
	Short description: Embryonic period, fetal period and congenital malformations. The placenta and placental membranes. The placenta and umbilical cord
	Literature: required and optional
III.	Title: Epithelial and connective tissue
	Short description: Covering and glandular epithelium, cells and intercellular substance of connective tissue, Lining epithelium, unformed connective tissue, tendons
	Literature: required and optional
IV.	Title: Blood cells
	Short description: Formation of blood cells. Blood cells and anomalies. Smear of bone marrow and blood smear
	Literature: required and optional
V.	Title: The cartilage and bone
	Short description: Supportive tissue-cartilage, adipose tissue and bone ossification. The development of the skeletal system. Hyaline, elastic and connective cartilage, decalcificated bone, a bone specimen, enchondral and desmal ossification
	Literature: required and optional
VI.	Title: Muscle tissue
	Short description: evelopment and structure of muscle tissue. Morphological based contractility. The skeletal, smooth and cardiac muscle
	Literature: required and optional
VII.	Title: Nervous tissue
	Short description: Development and structure of the nervous tissue. The histological structure of the nervous tissue. Spinal cord, cerebrum, cerebellum, peripheral nerve ganglia
	Literature: required and optional
VIII.	Title: Heart and blood vessels
	Short decription: Development and structure of the heart and blood vessels. Structure oft he heart and blood vessels, placenta. Heart valves, arteries, veins
	Literature: required and optional
IX.	Title: The lymphatic system
	Short description: The lymphatic system. The lymphatic organs, regional lymph nodes and lymph vessels. Thymus, lymph nodes, spleen and palatine tonsil
	Literature: required and optional
X.	Title: Neuroendocrine System
	Short description: Neuroendocrine System.The organization of the endocrine glands. The pituitary gland, thyroid gland, adrenal gland, epithelial corpuscle
	Literature: required and optional
XI.	Title: The respiratory system and skin

	Short description : Development and structure of the respiratory system, skin system. Respiratory membranes and skin. The lungs and trachea, skin and mammary gland
	Literature: required and optional
XII.	Title: Head and Neck 1
	Short description: The development of head and neck. Development and anomalies of the organs of the head and neck. Lip, tip of the tongue, salivary and papillavallata
	Literature: required and optional
XIII.	Title: Head and Neck 2
	Short description: Oral Cavity. Structure of the mouth. Palate, teeth and tooth development
	Literature: required and optional
XIV.	Title: Body cavities and digestive tract 1
	Short description: Development of body cavities. Build the gastrointestinal tract. The esophagus and stomach
	Literature: required and optional
XV.	Title: The digestive tract 2
	Short description: Development and structure of the gastrointestinal tract. Structure of the digestive system. Small and large intestine, appendix
	Literature: required and optional
XVI.	Title: The glands of the gastrointestinal tract
	Short description: liver and pancreas
	Literature: required and optional
XVII.	Title: Urinary System
	Short description: Development and structure of the urinary tract. Structure oft he urinary tract. Kidney, bladder and urethra
	Literature: required and optional
XVIII.	Title: Female Reproductive System
	Short description: Development and structure of the female reproductive system. Structure of the female reproductive system. Ovary, fallopian tube, uterus, vagina.
	Literature: required and optional
XIX.	Title: Male Reproductive System
	Short description: Development and structure of the male reproductive system. Structure of the male reproductive system. Testis, vas deferens, prostate, seminal vesicle and penis.
	Literature: required and optional
XX.	Title: the Ear
	Short description: Development and structure of the ear
	Literature: required and optional
XXI.	Title: The eye
	Short description: Development and structure of the eye
	Literature: required and optional

Name of the course	**Medical Biochemistry**			**Code**	
Type of study program Cycle	Integrated study program, Medicine			**Year of study**	II
Credits (ECTS) :	**9**	*Semester*	III	Number of hours per semester (l+e+s)	110 (42+34+34)
Status of the course:	Mandatory	*Preconditions:*	Passed all exams of the 1st	*Comparative conditions:*	
Access to course:	Second year students			*Hours of instructions*:	According to schedule

Course teacher:	Assistant professor Ivanka Mikulić Professor Ivana Čepelak Professor Tihana Žanić Grubišić
Consultations:	As agreed
E-mail address and phone number:	ivankacolak@yahoo.com 063/371-999
Associate teachers:	Vinka Mikulić Kristina Ljubić
Consultations:	As agreed
E-mail address and phone number:	barac.vinka@gmail.com ; 0633501916 klandeka@gmail.com; 063611611
The aims of the course:	The objectives of this course are: To introduce students with basic knowledge of inorganic, organic and physical chemistry necessary for understanding the human body. To apply the basic principles of molecular logic of biochemical processes in a living organism; To understand dynamics of the synthesis and degradation of natural bio-macromolecules: proteins, polysaccharides, lipids and nucleic acids. To analyze important factors that influence the dynamics of cell metabolism and the principles of its regulation and control. Furthermore, to introduce students with the characteristics of certain biochemical markers and their relationship with the function of major organ systems. To understand how the body works at the molecular level, which is reflected in the normal function of the body as well as pathobiochemical processes in the body. The acquired knowledge and skills provide a biochemical basis for understanding the senior year subjects such as: physiology,

<table>
<tr><td></td><td colspan="4">pathophysiology, pharmacology, internal medicine.</td></tr>
<tr><td>Learning outcomes (general and specific competences):</td><td colspan="4">General Outcomes:
• Applying the independent learning, critical thinking and scientific facts through active listening, work and positive relationships building with members of the group / team.

Specific outcomes:
• The critical and rational evaluation of the facts about the molecular composition, purpose and dynamics of macromolecular structures in living cells, the molecular logic of biochemical processes in a living organism, the dynamics of the synthesis and degradation of natural macromolecules, proteins, polysaccharides, lipids, nucleic acids.
• Understanding the basic principles of cell metabolism as well as the principles of its regulation and control.
• Remembering the biochemical and metabolic arguments to explain the physiological and pathophysiological processes.
• Understanding the principles and applying the experimental skills of determining kinetic characteristics of enzyme reactions and analysis of enzymes and metabolites in physiological samples.</td></tr>
<tr><td>Course content (Syllabus):</td><td colspan="4">The program consists of theoretical theaching biochemistry; 2 Continuous assessment biochemistry - Part 1, biochemistry- Part 2, and examination of practice); 1 partial exams and final exam.</td></tr>
<tr><td rowspan="3">Format of instruction (mark in bold)</td><td>Lectures</td><td>Exercises</td><td>Seminars</td><td>Independent assignments</td></tr>
<tr><td>Consultations</td><td>Work with mentor</td><td>Field work</td><td>Other</td></tr>
<tr><td colspan="4">Notes: The teacher presents the theoretical material. Students independently scrutinize the assigned topic related to the issues of appropriate teaching units in the form of power-point presentations.</td></tr>
<tr><td>Student responsibilities</td><td colspan="4">The final exam, 2 continuous assessments, seminars (2x during class); practical part of the output colloquium, attendance and participation in class, especially in problem solving during the seminar</td></tr>
<tr><td rowspan="2">Screening student work (mark in bold)</td><td>Class attendance</td><td>Class participations</td><td>Seminar essay</td><td>Practical training</td></tr>
<tr><td>Oral exam</td><td>Written exam</td><td>Continous assesment</td><td>Essay</td></tr>
</table>

Detailed evaluation within a *European system of points*

STUDENTS RESPONSIBILITIES	HOURS	PROPORTIONS OF ECTS	PROPORTIONS OF MARK
Class attendance and participations	25	1	5%
Seminar essay	35	1	5%
Continuous assessment of knowledge (2x)	35	1	15%
Practical part of the output colloquium	35	1	5%
Written exam	90	3	50%
Oral exam	60	2	20%

Additional explanations:
Since this is a basic course in a specific area biochemistry, in addition to lectures, the processing of selected variety of seminar topics and solving tasks helps students to extend their knowledge and to show ability to think critically and to recognize the essential elements of a certain educational issues.
In the final assessment, results of the final examination are included, as well as the activity during lectures, the success of the seminar essays and manner of presentation, activities on practical training and success in the continuous assessment. For the exam access student is required to make all the other aforementioned obligations.

Students have the option of the continuous assessment in biochemistry - Part 1 and biochemistry - Part 2, and a colloquium from exercises to win a maximum of 5 points (for a total maximum of 15), which are added to the second partial exam in biochemistry.
The exam is written and oral.

Final exam and regular examination periods: To pass (on the final exam or regular examination period) student should achieve 55% or more points. The unique assessment at the exam is determined on average grade of two tests, continuous assessments (tests),activitiy during all forms of teaching, and oral exam.

According to the Regulations on studying final grade is obtained as follows:
A = 90 to 100% 5 (excellent)
B = 80 to 89% 4 (very good)
C = 70 to 79% 3 (good)
D = 55 to 69% 2 (sufficient)
F = 0 to 59% 1 (insufficient)

Required literature:	For the course Medical Biochemistry is necessary: Priručnik za vježbe iz medicinske kemije i biokemije za studente medicine, I. Mikulić, N. Jelić Knezović, V. Mikulić, K. Landeka. Medicinski fakultet, Mostar 2014. **Biochemistry** 1. L. Stryer, J. Berg i J. Tymoczko, BIOKEMIJA, Školska knjiga, 2013. (prijevod VI izdanja na hrvatski jezik).. 2. Lovrić J, Sertić J. Harperova ilustrirana biokemija (28 izdanje; Murray RK, Bender DA, Botham KM, Kennelly PJ, Rodwell VW i Weil A.), Medicinska naklada Zagreb 2011. 3. CD – power point predavanja iz biokemije 1. i 2. (ili na: http://www.mefmo.ba) 4. Čvorišćec D, Čepelak I. Štrausova medicinska biokemija; Medicinska naklada Zagreb, 2009 (fotokopije odabranih poglavlja) 5. Karlson P: Biokemija za studente kemije i medicine, Školska knjiga, Zagreb, 1993. 6. Streyer L: Biokemija, Školska knjiga, Zagreb, 1991 (odabrana poglavlja)
Optional literature:	**Biochemistry** 1. Streyer L. Biochemistry, 7th ed. WH Freeman and Company, New York, 2012. 2. Michael Lieberman, Allan D. Marks, Colleen Smith: Marksove osnove medicinske biohemije: klinički pristup, Data Status, Beograd, 2008. 3. Zilva F, Pannal RP, Mayne DP: Klinička kemija u dijagnostici i terapiji, Školska knjiga, Zagreb, 1992. 4. Guyton AC, Hall JE: Medicinska fiziologija, XI izdanje, Medicinska naklada, Zagreb, 2006. 5. Sutlović D. Osnove forenzične toksikologije, Redak, Split, 2011.
Additional information about the course	Monitoring methods of teaching quality: - student questionnaire - quality analysis by students and teachers - exam results analysis - report of the office for teaching quality - external evaluation (visit of team for quality control)

ANNEXES: Calendar classes

The number of teaching units	**TOPICS AND LITERATURE**
1.	Title: The conformation and dynamics of protein structure
	Short description: Building of proteins: the characteristics of a peptide bond, the role of the weak interaction in preserving the structure. The conformation of polypeptide chains, the importance of amino acid sequence, primary, secondary, tertiary and quaternary struktura. Higher levels in the organization of proteins. Accumulation of protein in vivo. Denaturation and renaturation of the protein.
	Literature: . Streyer L. Biochemistry, 7th ed. WH Freeman and Company, New York, 2012; teaching materials
2.	Title: Proteins in Serum
	Short description: The types and functions of proteins in the human blood, diagnostic significance and methods
	Literature: . Streyer L. Biochemistry, 7th ed. WH Freeman and Company, New York, 2012 teaching materials
3.	Title: Proteins with special functions: hemoglobin, myoglobin, collagen, Elastin
	Short description: Globular proteins; Hemoglobin- allosteric protein structure, function and regulation, cooperative binding of oxygen; mioglobin- differences between monomers and tetramers. Fibrous proteins: structure of collagen, tropocollagen, primary structure, hydroxylation - prolyl hydroxylase, lysyl hydroxylase, glycosylation, scurvy, cooperation in the organization of collagen fibers, construction and degradation of collagen, osteoporosis.
	Literature: . Streyer L. Biochemistry, 7th ed. WH Freeman and Company, New York, 2012; teaching materials
4.	Title: Synthesis of heme, porphyria
	Short description: The synthesis and degradation of hemoglobin, metabolites synthetic route and times of heme degradation with diagnostic significance; features, methods of determination
	Literature: . Streyer L. Biochemistry, 7th ed. WH Freeman and Company, New York, 2012; teaching
5.	Title: Coenzyme, Enzyme catalysis
	Short description: The principles of enzymatic catalysis, regulation of enzymatic activity
	Literatura. Streyer L. Biochemistry, 7th ed. WH Freeman and Company, New York, 2012; teaching materials
6.	Title: Clinical significance of enzymes
	Short description: Structure and localization in the cell clinically important enzymes, tissue's and diagnostic specificity and sensitivity; isoenzymes

	Literature: . Streyer L. Biochemistry, 7th ed. WH Freeman and Company, New York, 2012; teaching Materials

7.	Title: Glycolysis
	Short description: The course pathway of glucose, control and regulation, allosteric regulated enzymes, hexokinase, phosphofructokinase, pyruvate kinase, ATP production, the importance of oxidation of NADH and LDH reaction
	Literature: . Streyer L. Biochemistry, 7th ed. WH Freeman and Company, New York, 2012; teaching materials
8.	Title: Gluconeogenesis, Cori cycle
	Short description: The metabolic pathway for the synthesis of glucose from noncarbohydrates precursor, irreversible reactions as checkpoints of gluconeogenesis, flow of Cori cycle
	Literature: . Streyer L. Biochemistry, 7th ed. WH Freeman and Company, New York, 2012; teaching materials
9.	Title: Glycogen
	Short description: Glycogen as store form of glucose in the human body, its structure and the way of synthesis and degradation
	Literature: . Streyer L. Biochemistry, 7th ed. WH Freeman and Company, New York, 2012; teaching materials
10.	Title: Citric acid cycle
	Short description: Creation of acetyl-CoA from pyruvate, pyruvate dehydrogenase complex-coenzymes and prosthetic groups. Synthesis of citrate and review of responses in the citric acid cycle. Energy changes in reactions and control unwinding CLK.
	Literature. Streyer L. Biochemistry, 7th ed. WH Freeman and Company, New York, 2012; teaching materials
11.	Title: Oxidative phosphorylation
	Short description: The redox potentials and the change of free energy, the inner membrane of mitochondria and localization of respiratory multienzyme complexs, cascade oxidation of coenzyme NADH and FADH2, proton pumps and creation of a gradient H +, the connection with the phosphorylation and synthesis of ATP, the energy efficiency of the complete oxidation of glucose, regulation of oxidative phosphorylation.
	Literature. Streyer L. Biochemistry, 7th ed. WH Freeman and Company, New York, 2012; teaching materials
12.	Title: Pentose- phosphate cycle
	Short description: Localization and metabolic pathway of the pentose phosphate cycle, metabolism of fructose, galactose.
	Literature. Streyer L. Biochemistry, 7th ed. WH Freeman and Company, New York, 2012; teaching materials
13.	Title: Amino acids
	Short description: Synthesis of amino acids, remodeling and the role of biogenic amines

	Literature. Streyer L. Biochemistry, 7th ed. WH Freeman and Company, New York, 2012; teaching materials
14.	Title: Urea Cycle
	Short description: Degradation, transamination of amino acids, the synthesis of urea, an overview of reactions governed by urea cycles, energy balance; metabolic defects as a result of lack of urea cycle enzymes
	Literature. Streyer L. Biochemistry, 7th ed. WH Freeman and Company, New York, 2012; teaching materials
15.	Title: Lipids, characterization
	Short description: Fat, phospholipids, glycolipids and sphingolipids, their chemical properties and biological role.
	Literature: . Streyer L. Biochemistry, 7th ed. WH Freeman and Company, New York, 2012; teaching materials
16.	Title: Beta – oxidation of fatty acids
	Short description: Degradation of fats and free fatty acids, a comparison with the synthesis of fatty acids, the synthesis of ketone bodies. The energy efficiency of the complete oxidation of fatty acids.
	Literature: . Streyer L. Biochemistry, 7th ed. WH Freeman and Company, New York, 2012; teaching materials
17.	Title: Glycoproteins / proteoglycans
	Short description: In vivo modification of proteins, the structure of glycoconjugates: proteoglycans, glycoproteins, glycolipids. Diseases related to the metabolism of glycoconjugates
	Literature: . Streyer L. Biochemistry, 7th ed. WH Freeman and Company, New York, 2012; teaching
18.	Title: Biological properties of the membrane
	Short description: Structure and biological function of cell membranes
	Literature: . Streyer L. Biochemistry, 7th ed. WH Freeman and Company, New York, 2012; teaching
19.	Title: Reactive oxygen compounds and antioxidants
	Short description: Reactivity and the formation of free radicals, reactions in the body, the interaction of antioxidants
	Literature: . Streyer L. Biochemistry, 7th ed. WH Freeman and Company, New York, 2012; teaching materials
20.	Title: DNA/RNA
	Short description: The structure of nucleic acids; large information capacity of DNA conformation double helix; A, B and Z forms of DNA; organization of the prokaryotic and eukaryotic genome, chemical based replication, DNA polymerase; mechanism of transcription initiation, elongation and termination; Activation of amino acids for protein synthesis; genetic code; Similarities and differences between the translation in prokaryotes and eukarvotes
	Literature: . Streyer L. Biochemistry, 7th ed. WH Freeman and Company, New York, 2012; teaching materials
21.	Title: Regulation of metabolism
	Short description: Review and connection of biochemical metabolic pathways.
	Literature: Streyer L. Biochemistry, 7th ed. WH Freeman and Company, New

22.	Title: Biochemistry of hormones
	Short description: The structure of hormones, similarities and differences in the structure with relation to their different functions.

	Literature: Streyer L. Biochemistry, 7th ed. WH Freeman and Company, New York, 2012; teaching materials
23.	Title: Biochemistry of vitamins
	Short description: Structure and role of the water soluble vitamins and the fat soluble vitamins, participation in the structure of coenzyme, and the consequences of the lack and excess of vitamins
	Literature: Streyer L. Biochemistry, 7th ed. WH Freeman and Company, New York, 2012; teaching materials
24.	Title: Biochemical aspects of bone tissue
	Short description: The chemical structure of bone, markers of bone resorption and bone formation, important in the diagnosis and prevention of osteoporosis
	Literature: Streyer L. Biochemistry, 7th ed. WH Freeman and Company, New York, 2012; teaching materials
25.	Title: The metabolism of water and electrolytes
	Short description: Homeostasis of body fluid compartments, and homeostasis of disordered concentrations of sodium, potassium, chloride; homeostasis of calcium, phosphate, magnesium, possible disorders, forms and methods
	Literature: Streyer L. Biochemistry, 7th ed. WH Freeman and Company, New York, 2012; teaching materials
26.	Title: Acid-base balance
	Short description: Features of buffers to maintain the pH of blood,possible disorders and possible ways of compensation
	Literature: Streyer L. Biochemistry, 7th ed. WH Freeman and Company, New York, 2012; teaching materials
27.	Title: Oligo - elements.
	Short description: The essential / nonessential oligo - elements, common features, examples, disorders of concentration of oligo- elements
	Literature: Streyer L. Biochemistry, 7th ed. WH Freeman and Company, New York, 2012; teaching materials
28.	Title: Biochemical aspects of muscle tissue
	Short description: The chemical mechanism of muscle contraction, structure and connecting the effects of actin and myosin
	Literature: Streyer L. Biochemistry, 7th ed. WH Freeman and Company, New York, 2012; teaching materials
29.	Title: Molecular aspects of digestion and nutrition of carbohydrates
	Short description: Features of carbohydrate absorption, diabetes melitus-diagnostic markers and markers for monitoring the disease and the effects of therapy
	Literature Streyer L. Biochemistry, 7th ed. WH Freeman and Company, New York, 2012; teaching materials
	Title: The metabolism of alcohols

30.	Short description: The absorption and distribution of ethanol in the body, and metabolism; Laboratory diagnosis of alcoholism, markers of acute and chronic alcoholism.
	Literature: Streyer L. Biochemistry, 7th ed. WH Freeman and Company, New
31.	Title: Metabolism of drugs / xenobiotics
	Short description: The role of CYP450, the second phase of metabolism of
	Literature: Streyer L. Biochemistry, 7th ed. WH Freeman and Company, New
32.	Title: Molecular aspects of digestion and nutrition of lipids
	Short description: Absorption, classification and features of clinically
	Literature: Streyer L. Biochemistry, 7th ed. WH Freeman and Company, New
33.	Title: Molecular aspects of digestion and nutrition of proteins
	Short description: Features absorption of protein, transamination of amino
	Literature: Streyer L. Biochemistry, 7th ed. WH Freeman and Company, New

Name of the course	**Basic Neuroscience**			**Code**	
Type of study program Cycle	Integrated study program, Medicine			**Year of study**	II
Credits (ECTS) :	**8**	*Semester*	III	Number of hours per semester (l+e+s)	100 (20+24+56)
Status of the course:	mandatory	*Preconditions:*	First year exams passed	*Comparative conditions:*	
Access to course:	Second year students			*Hours of instructions*:	According to the time schedule

Course teacher:	Prof. Zoran Đogaš, MD
Consultations:	
E-mail address and phone number:	e-mail: zdogas@gmail.com +385 21 557 905
Associate teachers	Prof. Maja Valić, MD; Assoc. Prof. Renata Pecotić, MD; Assist. Prof. Nikolina Pravdić, MD; Ivana Pavlinac Dodig, MD, PhD; Josip Lesko, MD; Linda Lušić, M. Psychol, Ivona Stipica, MD
Consultations:	
E-mail address and phone number:	e-mail: tnz@mefst.hr ; +387 36 335 600
The aims of the course:	General morphology - external and internal anatomy of the brain, cellular and molecular neuroscience; synaptic transmission; sensory systems; motor systems; general and associative brain functions and higher brain functions
Learning outcomes (general and specific competences):	Name, recognize and describe morphologic characteristics of the central nervous system, midbrain, brainstem, peripheral nervous system, spinal cord and describe their function. Describe basic electrophysiological characteristics of the neuron, explain mechanisms of the generation of transmembrane resting potentials, action potentials and postsynaptic potentials. Describe the principle of the information transmission between neurons, classify and explain characteristics and mechanisms of neurotransmitters' action, describe the structure of the receptors, and discuss their role in the information transmission. Describe, explain and outline principles of sensory system organization and apply adopted knowledge in solving examples of clinical cases. Describe, explain and outline principles of motor system organization and apply adopted knowledge in solving examples of clinical cases. Describe, explain and interpret neurophysiologic characteristics of the general brain function: learning and memory, emotions, sleep and wakefulness, neuronal control of breathing and hearth function.

	Use acquired theoretical knowledge in solving practical electrophysiological problem tasks on computer. Use acquired theoretical knowledge and demonstrate skills in recording of human bioelectrical potentials (EEG, EMG, and EOG).			
Course content (Syllabus):	Neuroscience is one of the basic medical sciences studying morphology and function of a healthy nervous system, with an emphasis on the mechanisms responsible for achieving its role as a central organism control and management system. This course will introduce students to problems in this area and enable them to approach problems using scientific methods. The course is organized in six thematicall sessions. The aim of the Basic neuroscience course is to teach a student how to use the acquired knowledge on physics, chemistry, biochemistry, biology, anatomy, histology and physiology in acquiring knowledge on the normal function of the nervous system to the extent necessary for further successful studying.			
Format of instruction (mark in bold)	**Lectures**	**Exercises**	**Seminars**	Independent assignments
	Consultations	Work with mentor	Field work	Other
	Notes:			
Student responsibilities	Students are obligate to attend all types of classes (20% of justified absence is allowed); students are obligate to perform colloquium for all seminars and exercises that they were absent.			
Screening student work (mark in bold)	**Class attendance**	**Class participations**	**Seminar essay**	Practical training
	Oral exam	**Written exam**	**Continous assesment**	Essay

Detailed evaluation within a *European system of points*

STUDENTS RESPONSIBILITIES	**HOURS**	**PROPORTIONS OF ECTS CREDITS**	**PROPORTIONS OF MARK**
Class attendance and participations	103	3	40%
Seminar essay	90	3	30%
Written exam	60	2	30%

Additional explanation: According to the Rules of studying final grade is appointed 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 (failed)

Required literature (available in the library and via other media)	1. Purves D. and al.: Neuroznascience, 5th ed (Croatian editors: Heffer M, Puljak L, Kostić S), Medicinska Naklada 2016. 2. Judaš M, Kostović I. Temelji neuroznanosti. 1. izdanje. Zagreb. MD; 2005. (slobodan web pristup), selected chapters. 3. Đogaš Z. i sur. Vodič kroz vježbe iz temelja neuroznanosti. Mostar: Medicinski fakultet; 2004.
Optional literature (at the time of submission of study programme proposal)	1. Kandel ER, Schwartz JH, Jessel TM. Principles of the neural science. 4.ed., New York (NY): McGraw-Hill; 2000. 2. Shepherd, Gordon M. Neurobiology. 3.ed. New York (NY): Oxford University Press; 1994.
Other (as the proposer wishes to add)	Teaching quality analysis by students and teachers Exam passing rate analysis Committee for control of teaching reports External evaluation

Annexes: the schedule

The number of teaching units	Subjects and literature
I.	TITLE: BASICS OF BRAIN ANATOMY LECTURES Introductory lecture; Neuron is a basic structural-functional unit of the CNS; CNS research methods; Development of the CNS and processes of development reorganization and plasticity; Peripheral nervous system and the spinal cord; Diencephalon and telenchephalon SEMINARS The structure of gray and white matter of the spinal cord The structure of gray and white matter of the brainstem and cerebellum The structure of gray and white matter of the diencephalon and telencephalon Neuroanatomy, summary EXERCISES Review of the CNS structures Appearance and distribution of gray and white matter of the spinal cord Appearance and distribution of gray and white mat
	Short description: Students Name, recognize and describe morphologic characteristics of the central nervous system, midbrain, brainstem, peripheral nervous system, spinal cord and describe their function
	Literature: Purves D et al.: Neuroscience, 5th ed (Croatian editors: Heffer M, Puljak L, Kostić S), Medicinska Naklada 2016. 2. Judaš M, Kostović I. Temelji neuroznanosti. 1. izdanje. Zagreb. MD; 2005. (slobodan web pristup), selected chapters.
II.	TITLE: BASICS OF ELECTROPHYSIOLGY OF THE NEURON LECTURES Neuron is a basic structural-functional unit of the CNS Biophysical basics of excitability SEMINARS Cell membrane, ion channels, passive and active properties of the neuron Electrophysiology of the neuron and types of the potentials EXERCISES

	Resting potential Action potential Synaptic potential.
	Short description: Students will learn basic of electrophysiological characteristics of the neuron, explain mechanisms of the generation of transmembrane resting potentials, action potentials and postsynaptic potentials.
	Literature: required literature
III.	TITLE: INTERCELLULAR SIGNALING LECTURES Neurotransmitters in health and disease Serotonin SEMINARS Structure and function of the synapse and the cellular basis of behavior (neuron sequences, pathways, circles, networks, systems) Neurotransmitters, neuropeptides and their receptors EXERCISES Signalization
	Short description: Students will learn principle of the information transmission between neurons, classify and explain characteristics and mechanisms of neurotransmitters' action, describe the structure of the receptors, and discuss their role in the information transmission.
	Literature: required literature
IV.	TITLE: SENSORY SYSTEM LECTURES General organization of the sensory system Physiology of the eye and phototransduction SEMINARS Pain, heat and cold – anterolateral sensory system Touch, pressure, and kinesthesia - the dorsal column system Ear - organ of hearing and balance Auditory and vestibular system Organization of the retina, primary visual pathway and primary visual cortex Perception of colours, shapes, depth and movement; and the organization of the associative visual fields of the cerebral cortex EXERCISES Physiology of the senses
	Short description: Students will describe, explain and outline principles of sensory system organization and apply adopted knowledge in solving examples of clinical cases
	Literature: required literature
V.	TITLE: MOTOR SYSTEM LECTURES General organization of the motor system Role of the motor cortex in voluntary movements SEMINARS Spinal motor mechanisms and reflexes Role of the descending pathways from the brainstem in maintaining posture and muscle tone; spinal shock Motor functions of the cerebellum Motor functions of the basal ganglia The hypothalamus controls the endocrine and the autonomic nervous system EXERCISES

	Muscles and electromyography
	Short description: Students will describe, explain and outline principles of motor system organization and apply adopted knowledge in solving examples of clinical cases
	Literature: required literature
VI.	TITLE: GENERAL BRAIN FUNCTION LECTURES Development of the CNS and processes of development reorganization and plasticity Stages of wakefulness and sleep; Sleep Medicine Physiology of intracranial pressure and cerebral circulation The structure of neurotransmitter systems and reticular formation SEMINARS General brain function: ascending activating system, EEG, alertness levels and levels of consciousness Neurobiology of biological rhythms and motivational states Neurobiology of emotion and sexuality Neurobiology of attention and association functions of the prefrontal and posterior parietal cortex Anatomy and psychology of learning and memory Cellular mechanisms of learning and memory EXERCISES Polisomnography Polisomnography report Reflexes and reaction time EEG and evoked potentials
	Short description: Students will describe, explain and interpret neurophysiologic characteristics of the general brain function: learning and memory, emotions, sleep and wakefulness, neuronal control of breathing and hearth function. Students will use acquired theoretical knowledge and demonstrate skills in recording of human bioelectrical potentials (EEG, EMG, and EOG).
	Literature: required literature

Name of the course	**Medical Physiology**			**Code**	
Type of study program Cycle	Integrated study program, Medicine			**Year of study**	II
Credits (ECTS):	**18**	*Semester*	IV	Number of hours per semester (l+e+s)	180 (67+39+74)
Status of the course:	mandatory	*Preconditions:*	Successfully passed first year exams	*Comparative conditions:*	/

Access to course:	Second year students	*Hours of instructions*:	According to schedule
Course teacher:	Associate Professor Danijel Pravdić, MD, PhD		
Consultations:	Arranged if needed in agreement with students (during and after the course)		
E-mail address and phone number:	danijel.pravdic@mef.sum.ba		
Associate teachers	**Domestic teachers:** Associate Professor Ivan Ćavar, MD, PhD Ante Bogut, MD Antonio Markotić, MD **Visiting teachers:** Full Professor Zlatko Trobonjača, MD, PhD (Faculty of Medicine, Rijeka) Assistant Professor Tomislav Kelava, MD, PhD (School of Medicine, Zagreb)		
Consultations:	-		
E-mail address and phone number:	-		
The aims of the course:	The overall aim of the Physiology course is to increase understanding of the normal functions of the human body.		
Learning outcomes (general and specific competences):	General outcomes: • Applying independent learning throughout the course in the way of critical and self-critical questioning and evaluation of scientific facts. • Applying personal knowledge and skills to provide personal contribution to teamwork (showing genuine interest through active listening and building of positive relationships within group). Specific outcomes: • Understanding the normal function of the living organism, based on the fundamental knowledge previously acquired during other basic medical courses (biology, chemistry, anatomy). • Understanding of the fundamental mechanisms, starting with molecular, through cellular to the organ level. • Synthesis of processes at the level of the whole organism. Outcomes will be evaluated through continuous assessment (weekly written test), active forms of learning during lectures and seminars and on final exam (written test and oral exam).		
Course content (Syllabus):	The Physiology course comprises 180 hours over an 11 weeks' period, which includes the after-course exam periods. The course is dived into two approximately equal parts: Physiology I (Ph1) and		

<table>
<tr><td></td><td colspan="4">Physiology II (Ph2). Each course part lasts for 3 weeks, followed by a one week of exam period for taking partial written exams (PE). If attendance criteria are met and both of PE passed, students can take oral exam.
Each part of the course (Ph1 and Ph2) consists out of lectures, seminars and exercises (practical work). At the end of every week or after one course unit is finished, integration seminar is held. These integration seminars allow one to repeat and fortify acquired knowledge through problem solving or questions-and-answers types of seminars. Their purpose is to motivate students to learn from the very beginning of the course and to stimulate them to discuss and determine the key facts of the previously covered subject matter. Activity of the students and their knowledge is assessed throughout seminars and practical work, especially in integration seminars.</td></tr>
<tr><td rowspan="3">Format of instruction (mark in bold)</td><td>Lectures</td><td>Exercises (practical work)</td><td>Seminars</td><td>Independent assignments</td></tr>
<tr><td>Consultations</td><td>Work with mentor</td><td>Field work</td><td>Other</td></tr>
<tr><td colspan="4">Remarks: Every unit starts with lectures, followed by seminars and practical work. Seminars are held in small groups which enables better interaction between teacher and students. Students will be introduced to practical work on exercises. Students will take part in performing specific practical assignments with the help of assistants or through independent work, when applicable.</td></tr>
<tr><td>Student responsibilities</td><td colspan="4">Partial exams; weekly tests; practical assignments; attending and active participating in the course.
Students will be evaluated based on:
Active participation in seminars and practical activities;
Preparation of units for seminars;
Development of their own critical thinking about the material they have read and ability to express their opinions.</td></tr>
<tr><td rowspan="3">Screening student work (mark in bold)</td><td>Class attendance</td><td>Class participations</td><td>Seminar essay</td><td>Practical training</td></tr>
<tr><td>Oral exam</td><td>Written exam</td><td>Continuous assessment</td><td>Essay</td></tr>
<tr><td></td><td></td><td></td><td></td></tr>
<tr><td colspan="5">Detailed evaluation within a European system of points</td></tr>
</table>

STUDENTS RESPONSIBILITIES	**HOURS**	**PROPORTIONS OF ECTS CREDITS**	**PROPORTIONS OF MARK**
Class attendance and participations	60	2.0	0%

Seminar essay	15	0.5	0%
Written exam	240	8.0	50%
Oral exam	210	7.0	50%
Practical training	20	0.5	0%

Further clarification:

Weekly (written) tests are held at the beginning of every week. There are six weekly tests that consists out of 20 questions related to the lessons from previous week. These tests are evaluated according to the following scheme:

grade A = 2 bonus points
grade B = 1.5 bonus points
grade C = 1 bonus point
grade D = 0.5 bonus point
grade F = 0 bonus point.

Only passed test are considered, so there are no negative points. Weekly tests are obligatory for all students. Students who skipped a single weekly written test lose their right of bonus points in corresponding course part. Maximum number of bonus points that student can earn on each partial exam is six (6). Thus, in practice, bonus points allow students to increase their grade by one level (e.g. from C to B). Negative points will be assigned to students who disturb classes or show lack of motivation and interest.

The partial (written) exam takes place one week after each part of the course (so called after-course exam period). It consists of 80 multiple choice questions with only one correct answer out of five given. To pass the partial exam, students need to achieve the score of 55% or more (i.e. at least 44 points, which is elimination threshold). Students who achieved at least two bonus points can lower the elimination threshold by two points, i.e. from 44 to 42 points. Bonus points are added to the score achieved on test if student surpass the elimination threshold, thus allowing student to reach higher grade. Maximum number of bonus points that can be added to test score is 6 for each partial exam.

Passed partial exam from first part of the course (Ph1) is NOT the precondition for taking second partial exam (Ph2). Taking partial exams in the after-course exam period does NOT count as taking exam. Student apply on each partial exam at their study consultant.

The oral exam covers the most important, integrative parts of physiology. List of integrative parts/questions is announced at the beginning of the course (Rules for undergraduate study program (Art. 67 and Art. 68)). The purpose of oral exam is to examine integrative knowledge which is essential for understanding of the Physiology course in its entirety, understanding of other courses and further medical practice.

To qualify for oral exam, student must pass both partial exams and the colloquium of exercises (practical work). Students who passed partial exams during course can apply for oral exam directly in exam period, which does count as taking final exam. Students can apply for final exam using University Information System (ISS). Whole exam must be completed within seven days.

There will be two terms to take **final exam** in both, summer and autumn exam periods, with the interval of at least 14 days between two terms. Students who passed one partial exam take only the partial exam which they didn't pass (i.e. previously passed partial exam is acknowledged). Bonus points are not added to the test score in final exams, so student must score at least 55% to pass the partial exam. Whenever student takes final exam in these exam periods, it is counted as one taking of the exam. Students who pass one part of exam, but not overall exam, "carry" the passing grade they achieved to another final exam(s).

According to the regulations of the study, final grade is obtained:
A = 91-100% 5
B = 79 to 90% 4
C = 67 to 78% 3
D = 55 to 66% 2
F = 0 to 54% 1

Students who find that they undeservedly received negative or lower grade may within 24 hours write a complaint to request new final exam in front of the committee or to request taking exam in the next exam period (Rules for study programs of University of Mostar, Art. 58.).

Required literature:	• Guyton AC, Hall JE: Textbook Of Medical Physiology, 13th Edition, 2016. • Physiology: Practical Work Tutorials, internal edition, School of Medicine, Mostar, 2015.
Optional literature:	• Linda S. Costanzo Physiology: Board Review Series, 2nd edition, Lippincott, Williams & Wilkins. • Linda S. Costanzo: Physiology, 4th edition, Saunders Elsevier, 2010.
Additional information about the course	Means of quality assessment of the course: - student questionnaire - quality analysis by students and teachers - analysis of the exam pass rates - report of the Teaching Quality Office - self-evaluation and extraneous evaluation (visits of quality assessment teams)

Annexes: calendar classes

The number of teaching units	TOPICS AND LITERATURE
Lectures:	L1: Functional organization of human body and homeostasis; transport of ions and molecules through cell membranes L2: Basic physics of membrane potentials L3: Excitation of skeletal muscle L4: Excitation and contraction of smooth muscle L5: Physiology of cardiac muscle L6: Rhythmical excitation of the heart L7: The normal ECG L8: Overview of the circulation: physics of pressure, flow ant resistance

	L9: Long-term control of arterial pressure: integrated system for arterial pressure regulation L10: Hemorrhagic shock and physiological principles of treatment L11: The body fluid compartments and volumes and their balance; edema L12: Kidneys: physiological anatomy and function L13: Thirst, integration of renal mechanisms for control of blood volume and extracellular fluid volume L14: Regulation of renal potassium, calcium and magnesium excretion L15: Micturition and diuretics L16: Regulation of acid-base balance: acids, bases, pH, buffers L17: Erythrocytes L18: Resistance of the body to infection L19: Hemostasis and blood coagulation L20: Mechanics of lungs, Laplace's law, functions of the respiratory passageways L21: Pulmonary circulation, pulmonary edema and pleural fluid L22: Physical principles of gas exchange L23: Physiologic problems of high-altitude and deep-sea diving L24: The autonomic nervous system and the adrenal medulla L25: General principles of gastrointestinal function L26: Review and regulation of carbohydrate metabolism, formation of ATP L27: Review and regulation of lipid metabolism L28: Review and regulation of protein metabolism L29: The liver as an organ, iron metabolism L30: Dietary balance, regulation od feeding, obesity and starvation, vitamin and minerals L31: Body temperature regulation L32: Introduction to endocrinology; principles of secretion, transport, action and clearance of hormones L33: Pituitary gland-hypothalamus relation, posterior pituitary hormones L34: Blood glucose regulation, diabetes mellitus L35: Calcium and phosphate metabolism, Bone and teeth physiology L36: Synthesis of adrenocortical hormones, functions of mineralocorticoids L37: Spermatogenesis, male fertility L38: Monthly ovarian cycle and function of the gonadotropic hormones L39: Puberty, menarche, menopause and female fertility L40: Pregnancy and parturition L41: Lactation and fetal physiology Literature: required and optional
Seminars:	S1: Membrane and action potentials S2: Contraction of skeletal muscle S3: Cardiac cycle, regulation of heart pumping S4: Integration (general physiology, potentials, muscles and heart) S5: Vascular distensibility, functions of the arterial and venous systems, the structure of microcirculation

	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: Glomerular filtration, renal blood flow and their control S12: Tubular reabsorption and secretion S13: Regulation of reabsorption in tubules, renal clearance S14: Regulation of extracellular fluid osmolarity and sodium concentration S15: Acid-base regulation: respiratory and renal regulation, acidosis and alkalosis S16: Integration (kidneys and body fluids) S17: Pulmonary ventilation S18: Composition of alveolar air and diffusion of gases through the respiratory membrane S19: Transport of oxygen and carbon dioxide in blood and tissue fluids S20: Regulation od respiration S21: Integration (respiratory system) S22: Propulsion and mixing of food in the alimentary tract S23: Secretory functions of the alimentary tract I S24: Secretory functions of the alimentary tract II; absorption of water and ions S25: Energetics and metabolic rate S26: Integration (alimentary tract and metabolism) S27: Anterior pituitary hormones S28: Thyroid hormones S29: Insulin and glucagon S30: Parathyroid hormone, calcitonin, vitamin D S31: Adrenocortical hormones S32: Integration (endocrinology) S33: Male sex hormones, pineal gland S34: Ovarian hormones and female monthly rhythm S35: Integration (reproduction) Literature: required and optional
Exercises – Practical work:	E1: *Prosig*: Transport of molecules and ions through cell membrane, membrane potentials E2: *Interactive physiology 9.0:* Contraction of skeletal and smooth muscle E3: Regulation of heart pumping E4: Recording and the analysis of ECG, E5: Vectorial analysis of ECG E6: Measuring of the arterial pressure and peripheral pulse rate, heart sounds E7: Effect of exercise and different body positions on arterial pressure E8: *Interactive physiology 9.0*: Cardiovascular system E9: Electrocardiogram and cardiac cycle (Wiggers diagram)

	E10: *Interactive physiology 9.0:* Analysis of renal function E11: Acid-base regulation E12: Hematology I (erythrocyte count, hemoglobin and hematocrit) E13: Hematology II (hematological indices, determination of blood type) E14: *Interactive physiology 9.0*: Respiratory system E15: Spirometry test I E16: Spirometry test II E17: Oxygen-hemoglobin dissociation curve, carbon dioxide dissociation curve E18: Astrand cycle ergometer test E19: Physical and chemical processes of digestion E20: OGTT- Oral Glucose Tolerance Test E21: Endocrinology I E22: Endocrinology II Literature: required and optional

Name of the course	**Medical Psychology**			**Code**	
Type of study program *Cycle*	Integrated study program, Medicine			**Year of study**	II
Credits (ECTS):	**4**	*Semester*	IV	Number of hours per semester (l+e+s)	60 (20+20+20)
Status of the course:	mandatory	*Preconditions:*	Successfully passed 1st year exams	*Comparative conditions:*	
Access to course:	Second year students			*Hours of instructions*:	According to schedule

Course teacher:	Associate Professor Dragan Babić, MD, PhD
Consultations:	As agreed
E-mail address and phone number:	dragan.babic@tel.net.ba
Associate teachers	Marko Pavlović, MD, MSc Ruža Milićević, MD, MSc Martina Krešić, MD, MSc Iva Čolak, MPsy
Consultations:	As agreed
E-mail address and phone	-
The aims of the course:	The aim of this course is to introduce students with the basic psychological features of health and illness.

Learning outcomes (general and specific competences):	General outcomes: • Applying the independent learning through critical and self-critical questioning of scientific facts. • Remembering the possession of personal qualities such as teamwork and personal contribution to it, attentiveness, active listening and building of positive relationships within group. Specific outcomes: • Remembering the basis of medical psychology • Understanding the personality and its structure • Understanding the defense and mental mechanisms • Understanding the relationship between individual and environment, doctor-patient and patient-doctor relationships • Understanding the patients' reactions to illness, stress-coping strategies and processes that occur during teamwork Outcomes will be evaluated with continuous assessment, active forms of learning during lectures and seminars, and in final exam.
Course content (Syllabus):	The course consists out of lectures, seminars and exercises. Following lectures, students have opportunity to critically discuss the matter in seminars, and to apply it in practice during exercises.

Format of instruction (mark in bold)	**Lectures**	**Exercises**	**Seminars**	Independent assignments
	Consultations	Work with mentor	Field work	Other
	Remarks:			
Student responsibilities	Students are required to attend classes, it is allowed to be absent 20 % of classes.			
Screening student work (mark in bold)	Class attendance	**Class participations**	**Seminar essay**	Practical training
	Oral exam	**Written exam**	Continous assesment	Essay

Detailed evaluation within a *European system of points*

STUDENTS RESPONSIBILITIES	HOURS	PROPORTIONS OF ECTS CREDITS	PROPORTIONS OF MARK
Class attendance and participations	15	0.5	15%
Seminar essay	15	0.5	15%
Written exam	45	1.5	40%
Oral exam	45	1.5	30%
Further clarification:			

According to the regulations of the study, final grade is obtained: A = 91-100% 5 B = 79 to 90% 4 C = 67 to 78% 3 D = 55 to 66% 2 F = 0 to 54% 1	
Required literature:	Blažević D et al. Medicinska psihologija, JUMENA Zagreb, 1989. Klain E et al. Psihološka medicina; GOLDEN M, Zagreb, 1999
Optional literature:	Havelka et al. Zdravstvena psihologija, NAKLADA SLAP, 1997. Gregurek R, Psihološka medicina; MEDINSKA NAKLADA Zagreb, 2011. Babić D et al. Hand-outs (additional literature).
Additional information about the course	Monitoring methods of teaching quality: - student questionnaire - analysis of the quality by students and teachers - exam results analysis - report of the office for teaching quality - external evaluation (visit of team for quality control)

Annexes: calendar classes

The number of teaching units	**TOPICS AND LITERATURE**
I.	Title: Introduction to psychology
	Short description: Medical psychology and psychopathology. Learning and learning styles
	Literature: required and optional
II.	Title: Stress and psychosomatics. Psychology of work. Psychology of pain. Patients' reactions to illness.
	Short description:
	Literature: required and optional
III.	Title: Doctor-patient relationship. Patient-doctor relationship. Anxiety. Aggression. Psychodiagnostics.
	Short description:
	Literature: required and optional
IV.	Title: Individual and environment. Ethics in psychology. Psychosomatics. Development and structure of personality. Psychic trauma. Frustration.
	Short description:
	Literature: required and optional
V.	Title: Language and communication. Mental mechanisms. Psychological features of aging. Defense mechanisms. Relationships between sexes.

	Psychosexual development of personality. Psychic system. Affection, loss and grief.
	Short description: the oral, the anal and the phallic stages, id, ego, superego
	Literature: required and optional
VI.	Title: Child and environment. The sick child.
	Short description:
	Literature: required and optional

Name of the course	**Medical Genetics**			**Code**	
Type of study program Cycle	Integrated study program, Medicine			**Year of study**	II
Credits (ECTS) :	**4**	*Semester*	II	Number of hours per semester (l+e+s)	45 (20+20+5)
Status of the course:	required	*Preconditions:*		*Comparative conditions:*	
Access to course:	Second year students			*Hours of instructions*:	According to schedule
Course teacher:	Head: Prof. Katarina Vukojević				
Consultations:	Mondays and Thursdays from 9 to 10 or according to the deal				
E-mail address and phone number:	katarina.vukojevic@mef.sum.ba 0038736335600				
Associate teachers	Prof. Sandra Kostić Senior assistant Una Glamočlija				
Consultations:	Mondays and Thursdays from 9 to 10 or according to the deal				
E-mail address and phone number:	sandra.kostic@mefst.hr una.glamoclija@gmail.com 0038736335600				
The aims of the course:	The objectives of this course are: to introduce medical students with basic facts about medical genetics, introduce to the concepts of human medical genetics and appreciation of the genetic perspective on health and disease.				
Learning outcomes (general and specific competences):	On completion of the course, the student should achieve general and specific outcomes. General outcomes: The course intends to give basic medical genetic knowledge about the structure and function of the human genome as well as the importance of relevant genetic factors for origin of diseases, abnormalities and developmental disorders in humans. Apply personal qualities of personality (team work and personal contribution, interest, active listening, and building positive relationships with members of the group).				

	Specific outcomes: Demonstrating and understanding the structure of the human genome and function and know and understand basic concepts for the expression of most studied genes. Explain the definitions and learn basic rules of inheritance using basic examples. Know and have understanding for different genetic factors of importance for the origin of hereditary diseases and for the genetic variation of normal properties. Learn how to use the genetic language. Explain the significance of genetic mutations (the autosomal and sex-linked inheritance). Know and be able to use basic genetic concepts and identify Mendelian inheritance patterns. Describe, explain and outline principles of basic medical genetic techniques in the context of basic genetic achievements. Explain the basic concepts of pharmacogenomics importance. Describe and analyse the connection between cancer genetics and polygenetic phenotypic characteristics. Learning the importance of modern medical genetic and the scientific principles that are the foundation of current approaches to the diagnosis and treatments (stem cell therapies, gene therapy and genetically modified organisms). Describe, explain and outline principles of usage of different gene and protein databases. During the course, students learn how to communicate, present data and discus about relevant scientific topics, and how to synthesize learned material. Knowledge about medical genetics will be useful tool in recognizing, treating and preventing genetic disorders. Outcomes will be evaluated with continuous assessment, quizzes seminars and colloquium exercise and active forms of learning during exercises, lectures and seminars (quizzes for each unit), and the final practical, written and oral exam.
Course content (Syllabus):	Course consists of 10 units, 7 quiz-test, assessment in seminars, 5 colloquium, assessment on exercises, and MCQ test. Each thematic unit includes: 2 hours of lectures, 2-3 hours of seminars and 0-1 hours of exercises. L1 (2 hours) – Introduction to Medical genetics L2 (2 hours) – Functional genomics and proteomics L3 (2 hours) – Genomics and the Human Genome Project L4 (2 hours) – Pharmacogenomics L5 (2 hours) – RNA genes and RNAi L6 (2 hours) – Mutations and aberrations L7 (2 hours) – DNA analysis L8 (2 hours) – Mitochondrial inheritance and human development L9 (2 hours) – Gene therapy. Genetically modified organisms (GMO) L10 (2 hours) – Epigenetics S1 (3 hours) – Chromosomes. DNA analysis techniques. S2 (3 hours) – Inheritance patterns (Mendelian and Non-Mendelian) and genetic counseling

	S3 (3 hours) – Applications to public health - screening and identification of populations at risk S4 (3 hours) – Carcinogenesis and common genetic factors S5 (3 hours) – Genes and molecular mechanisms underlying human disease S6 (3 hours) – Genetic background of congenital anomalies S7 (2 hours) – Gene ethics E1 (1 hour) – Introduction to Cytogenetics laboratory E2 (1 hour) – Primer design for genetic testing E3 (1 hour) – Bioinformatics (database search and OMIM) E4 (1 hour) – Cloning, transgenic animals, gene therapy E5 (1 hour) – Odds, probabilities, Bayes' theorem.			
Format of instruction (mark in bold)	**Lectures**	**Exercises**	**Seminars**	**Independent assignments**
	Consultations	Work with mentor	**Field work**	Other
	Remarks: The teaching of each unit begins with a lecture, followed by seminars and exercises. The course is based on self-study. Information about different activities such as assignments and submission dates are on the website of the course. Communication between students and teachers take place primarily via the website and via e-mail. It is a requirement that the participants have access to the Internet. At the seminars, students receive problem tasks that are solved in small groups, at the end of the seminar is a quiz-test, and then students discuss the correct answers with explanations of problems.			
Student responsibilities	Final exam; Quizzes on the seminars; tasks; MCQ tests; attendance and participation in class. Students will be evaluated based on: • Active participation in seminars and exercises. • Preparation of teaching units for seminars • Read teaching texts and develop their own critical thinking about the material and express those views. • work in small groups			
Screening student work (mark in bold)	**Class attendance**	**Class participations**	**Seminar essay**	**Practical training**
	Oral exam	**Written exam**	**Continous assesment**	Essay

Detailed evaluation within a *European system of points*

STUDENTS RESPONSIBILITIES	**HOURS**	**PROPORTIONS OF ECTS CREDITS**	**PROPORTIONS OF MARK**
Class attendance and participations	30	0,5	

Seminar essay	20	0,5	10%
Written exam	50	2,5	80%
Practical work	5	0,5	10%

Further clarification

The assessment criteria of written exam:
Final written exam
27-33 = (2);
33-39= (3);
40-45 = (4);
46-50 = (5);

Quizzes at seminars (10% of the final grade)
After each seminar conducted a written quiz consisting of 10 questions. The maximum number of points is 70. Correct answers will be evaluated and continuously added, and at the end of course evaluate. The rating of this form of assessment is:
39-46 = (2);
47-54 = (3);
55-62 = (4);
63-70 = (5);

Practical exam (10% of the final grade)
Reports from the different exercise sessions (7 points), laboratory sessions (7 points) and oral presentations during seminars (7 points)
13-14 = (2);
15-17 = (3);
18-19 = (4);
20-21 = (5);

Final score: The final score is the sum of =
complete written (80%) + quizzes in seminars (10%) + practical exam (10%).

According to the regulations of the study, final grade is obtained:
A = 91-100% 5
B = 79 to 90% 4
C = 67 to 78% 3
D = 55 to 66% 2
F = 0 to 54% 1

Required literature:	Emery's Elements of Medical Genetics – Peter D Turnpenny, Sian Ellard, 14th edition, Elsevier, 2012.
Optional literature:	Essential Medical genetics – Tobias E.S, Connor M, Ferguson-Smith M, 6th edition, Wiley-Blackwell, 2011
Additional information about the course	Students responsibilities are in accordance to Rules of studying and Deontological code of MEFMO students. Methods of monitoring the quality of teaching: student survey

	Quality control analysis by the students and teachers Analysis of passing the exams The report of the Office for the quality of teaching

Annexes: calendar classes

The number of teaching units	TOPICS AND LITERATURE
I.	Title: Introduction to Medical genetics
	Short description: Basic principles of Medical genetics; mitosis, meiosis and chromosomes
	Literature: required and optional
II.	Title: Functional genomics and proteomics
	Short description: Genome structure, genetic mapping, basic principals of proteomics
	Literature: required and optional
III.	Title: Genomics and the Human Genome Project
	Short description: Determining the sequence of nucleotide base pairs that make up human DNA, and of identifying and mapping all of the genes of the human genome from both a physical and a functional standpoint.
	Literature: required and optional
IV.	Title: Pharmacogenomics
	Short description: The role of the genome in drug response. Its name (pharmaco- + genomics) reflects its combining of pharmacology and genomics
	Literature: required and optional
V.	Title: RNA genes and RNAi
	Short description: Description of biological process in which RNA molecules inhibit gene expression or translation, by neutralizing targeted mRNA molecules.
	Literature: required and optional
VI.	Title: Mutations and aberrations
	Short description: Description of a missing, extra, or irregular portion of chromosomal DNA, gene mutations and aberrations
	Literature: required and optional
VII.	Title: DNA analysis
	Short description: DNA profiling to determine an individual's DNA characteristics
	Literature: required and optional
VIII.	Title: Mitochondrial inheritance and human development
	Short decription: The DNA of cytoplasmic organelles is inherited in a non-Mendelian manner. This pattern of inheritance is generally referred to "maternal inheritance." Implications to human development
	Literature: required and optional
IX.	Title: Gene therapy. Genetically modified organisms (GMO)
	Short description: Utilisation of different vectors to deliver genes which can cure disease in humans. Implications of gene therapy
	Literature: required and optional

X.	Title: Epigenetics
	Short description: The study of changes in organisms caused by modification of gene expression rather than alteration of the genetic code itself.
	Literature: required and optional

Name of the course	**Immunology**			**Code**	
Type of study program Cycle	Integrated study program, Medicine			**Year of study**	II
Credits (ECTS) :	**4**	*Semester*	IV	Number of hours per semester (l+e+s)	(50) 27+4+19
Status of the course:	mandatoy	*Preconditions:*	Passed all exams of the 1st year	*Comparative conditions:*	
Access to course:	Second year students			*Hours of instructions*:	According to schedule

Course teacher:	Ivan Ćavar, MD, PhD, assistant professor
Consultations:	As agrees
E-mail address and phone number:	ivancavarswe@yahoo.com /+38736335634
Associate teachers	Assistant professor Vesna Lukinović Škudares; Assistant professor Tomislav Kelava; Katarina Majstorović, MD
Consultations:	according to deal
E-mail address and phone number:	katarina.majstorovic@yahoo.com
The aims of the course:	The aims of this course are: understanding the structure and function of the immune system of a healthy organism, the basic mechanisms of immune reactions, fundamental disorders and interventions in the immune system.
Learning outcomes (general and specific competences):	General competences: Applying the independent learning through critical and self-critical questioning of scientific truth during the study. Remembering the possession of personal qualities of personality through personal contribution during classes (interest and active participation and building positive relationship with members of the group). Specific competences: Understanding, applying and analyzing the structure and function of the immune system in health (physiological aspects) and disorders of

<table>
<tr><td></td><td colspan="4">the immune system which meets the importance of theoretical knowledge of immunology.
Understanding the complex mechanisms of the disease with immunopathogenic background. Understanding the basic principles of immunodiagnostics, and basic interventions in the functioning of the immune system (immunization, immunomodulation, immunosuppression, transplantation), which will synthesize critical thinking about the importance of these procedures in the practical medicine.

Outcomes will be evaluated with continuous assessment, active forms of learning during lectures and seminars, and final written and oral exam.</td></tr>
<tr><td>Course content (Syllabus):</td><td colspan="4">Education in the course of immunology consists of 10 teaching units, assessment during the seminars and 2 written weakly test assessment. Each thematic unit includes: 2-6 hours of lectures and 2-3 hours of seminars and 2 hours of exercises which include 2 thematic units.</td></tr>
<tr><td rowspan="3">Format of instruction (mark in bold)</td><td>Lectures</td><td>Exercises</td><td>Seminars</td><td>Independent assignments</td></tr>
<tr><td>Consultations</td><td>Work with mentor</td><td>Field work</td><td>Other</td></tr>
<tr><td colspan="4">Remarks:The teaching of each unit begins with lectures and /or seminars. During the seminars, students actively participate and critically discuss about thematic unit which they should prepare in advance.
At the end of each week, students have seminar for repetition with a written test, where students can collect extra points for a final written test. During exercises, students learn basic principles of flow cytometry, indirect immunoflourescence and ELISA.</td></tr>
<tr><td>Student responsibilities</td><td colspan="4">Students are required to attend classes, it is allowed to be absent 20 % of classes. Students are required to prepare for each seminar and week assessment of knowledge, so that they can actively participate in classes. A precondition for taking oral exam is previously passed the written exam.</td></tr>
<tr><td rowspan="2">Screening student work (mark in bold)</td><td>Class attendance</td><td>Class participations</td><td>Seminar essay</td><td>Practical training</td></tr>
<tr><td>Oral exam</td><td>Written exam</td><td>Continous assesment</td><td>Essay</td></tr>
<tr><td colspan="5">Detailed evaluation within a European system of points</td></tr>
<tr><td>STUDENTS RESPONSIBILITIES</td><td>HOURS</td><td colspan="2">PROPORTIONS OF ECTS CREDITS</td><td>PROPORTIONS OF MARK</td></tr>
</table>

Class attendance and participations	15	0,5	0 %
Written exam	80	2,5	70%
Oral exam	25	1	30%

Further clarification:
Student activity during seminars and the weekly preliminary exam/coloquium will be rewarded, so that students can achieve a maximum of 4 additional points on written part of the test which can maximize the grade of the final written test for 1 degree.
The written part of the test consists of 50 questions with multiple choice and the final grade is obtained according to the Regulation of Studies (see. down below).Written exam with extra points makes 70% of the final grade, while the oral exam makes 30% of the final grade, which means that students on the oral exam may increase or possibly decrease the grade that they have made in the written test for a maximum of 1 degree.
In the case that students pass a written test, but do not pass the oral exam, the written part of the test will be valid during the current academic year.
According to the regulations of the study, final grade is obtained:
A = 91-100% 5
B = 79 to 90% 4
C = 67 to 78% 3
D = 55 to 66% 2
F = 0 to 54% 1

Required literature:	Andreis I, Batinić D, Čulo F, Grčević D, Lukinović Škudar V, Marušić M, Taradi M, Višnjić D. Immunology, 7th edition. Zagreb: Medical edition. 2010.
Optional literature:	Abbas, AK, Lichtman, AH, Pillai S. Cellular and molecular immunology, 8th Edition. Elsevier Canada, 2015. „Hand-outs“ and websites of immunology (especially for exercises): http://www.hhmi.org/biointeractive/immunology/vlab.html http://www.hhmi.org/biointeractive/vlabs/immunology/index.html http://www.science4u.info/virtuallab/index.htm http://vibe.stanford.edu/
Additional information about the course	Monitoring methods of teaching quality: - student questionnaire - analysis the teaching quality of teachers - exam results analysis - report of the office for teaching quality - external evaluation (visit of team for control quality)

Annexes: calendar classes

The number of teaching units	**TOPICS AND LITERATURE**
I.	Title: Introduction to the immune system
	Short description: structure and function of the immune system, cells and organs
	Literature: required and optional
II.	Title: Nonspecific immunity

	Short description: components and basic mechanisms of nonspecific immunity
	Literature: required and optional
III.	Title: Antigens and antibodies
	Short description: antigens,MHC antigens, erythrocyte antigen, antibodies and their structure
	Literature: required and optional
IV.	Title: Cytokines and chemokines, system of complement
	Short description: cytokines of innate and adaptive immunity, chemokines, activation and function of complement
	Literature: required and optional
V.	Title: Humoral immunity
	Short description: executive mechanisms of humoral immunity, B – lymphocytes
	Literature: required and optional
VI.	Title: Cell immunity
	Short description: executive mechanisms of cell immunity, hellper and cytotoxic T cells
	Literature: required and optional
VII.	Title: Regulation of the immune response
	Short description: phase of immune response, negative feedback regulation, cell regulation, idiopathic regulation, neurohumoral and gene regulation
	Literature: required and optional
VIII.	Title: Immune tolerance, immunosuppression, autoimmunity
	Short decription: central and peripheral tolerance, basics mechanisms of immunosuppression, basic principles of autoimmunity
	Literature: required and optional
IX.	Title: Immunological response to tumors and transplants
	Short description: tumor antigens,avoiding mechanisms of immune control in tumors, transplantation antigens, immunological mechanisms of rejection in transplanted tissue and organs
	Literature: required and optional
X.	Title: Hypersensitivity. Primary and secondary immunodeficiencies
	Short description: types of hypersensitivity, antibodies – mediated hypersensitivity, cytotoxic hypersensitivity, immune complexes - mediated hypersensitivity, cell-mediated hypersensitivity, primary and secondary immunodeficiencies
	Literature: required and optional
XI.	Title: Immunological laboratory methods
	Short description : reactions to demonstrate humoral and cell immunity
	Literature: required and optional

Name of the course	**Croatian Language II**	**Code**	

Type of study program Cycle	Integrated study program, medicine				**Year of study**	II
Credits (ECTS) :	**0**	*Semester*	IV		Number of hours per semester (l+e+s)	30 (0+30+0)
Status of the course:	required	*Preconditions:*	none	*Comparative conditions:*		
Access to course:	Second year students			*Hours of instructions*:		According to schedule
Course teacher:	Ivana Miloš, professor					
Consultations:	Mondays and Thursdays from 12 to 13 or according to the deal					
E-mail address and phone number:	ivana.milos@mef.sum.ba					
The aims of the course:	The aims of this course is to introduce students Croatian language so that they can communicate with patients when they arrive at clinical years.					
Learning outcomes (general and specific competences):	Listening: students should understand common phrases in spoken language. Reading: students should be capable reading short sentences and texts. Speaking: students should communicate using short sentences. Writing: students should be able to write simple sentences.					
Course content (Syllabus):	Introductory explanation of grammatical forms, introduction of basic vocabulary (10 hours). Listening, reading, speaking and writing of simple sentences (50 hours).					
Format of instruction (mark in bold)	Lectures	Exercises	**Seminars**	**Independent assignments**		
	Consultations	Work with mentor	Field work	Other		
	Remarks: In accordance to Rules of studying					
Student responsibilities	Final exam, tests, attendance and participation in class. Students will be evaluated based on: • Active participation in seminars.					
Screening student work (mark in bold)	Class attendance	Class participations	Seminar essay	Practical training		
	Oral exam	**Written exam**	Continous assesment	Essay		

Detailed evaluation within a *European system of points*			
STUDENTS RESPONSIBILITIES	**HOURS**	**PROPORTIONS OF ECTS CREDITS**	**PROPORTIONS OF MARK**
Class attendance and participations	60	0	
Seminar essay	10	0	
Written exam	10	0	100%
Oral exam	0	0	

Further clarification:
Exam is written
According to the regulations of the study, final grade is obtained:
A = 91-100% 5
B = 79 to 90% 4
C = 67 to 78% 3
D = 55 to 66% 2
F = 0 to 54% 1

Required literature:	1. Cvikić, L. i Bošnjak, M. (2012). Hrvatski u malome prstu. Hrvatsko filološko društvo.,Zagreb. 2. Čilaš M., Gulešić-Machata, M., Pasini, D., Udier, S. L. (2006). Hrvatski za početnike. Hrvatska sveučilišna naklada, Zagreb. 3. Vidan, A. & Neigbuhr, R. (2009). Beginner's Croatian. Hypocrene Books. New York.
Optional literature:	1. C. Hawkesworth (2003). Colloquial Croatian with CDs. Routledge. 2. Vinko Grubišić (1994). Elementary Croatian. CIC, Zagreb.
Additional information about the course	Methods of monitoring the quality of teaching: student survey Quality control analysis by the students and teachers Analysis of passing the exams The report of the Office for the quality of teaching

Name of the course	**Physical Education II**				**Code**	
Type of study program *Cycle*	Integrated study program, Medicine				**Year of study**	II
Credits (ECTS) :	**0**	*Semester*	IV		Number of hours per semester (l+e+s)	30 (0+30+0)
Status of the course:	required	*Preconditions:*	none	*Comparative conditions:*		
Access to course:	Second year students			*Hours of instructions*:		According to schedule
Course teacher:	Mladen Kvesić, professor					

Consultations:	Mondays and Thursdays from 12 to 13 or according to the deal			
E-mail address and phone number:	036335600			
The aims of the course:	The aim of the course is to raise the awareness in students about the importance of exercise and healthy lifestyle and to achieve and maintain optimum physical activity.			
Learning outcomes (general and specific competences):	Developing the motorical skills. Achiving the optimum physical activity. Applying the healthy lifestyle habbits.			
Course content (Syllabus):	The course is conducted through 30 hours of excersises during which student are provided with different activities such as athletics, basketball, wolleyball, football. Adjusted program for students with special needs.			
Format of instruction (mark in bold)	Lectures	**Exercises**	Seminars	Independent assignments
	Consultations	Work with mentor	Field work	Other
	Remarks: In accordance to Rules of studying			
Student responsibilities	Students are required to attend classes on schedule and to actively participate in exercises.			
Screening student work (mark in bold)	Class attendance	Class participations	Seminar essay	**Practical training**
	Oral exam	**Written exam**	Continous assesment	Essay

Detailed evaluation within a *European system of points*

STUDENTS RESPONSIBILITIES	**HOURS**	**PROPORTIONS OF ECTS CREDITS**	**PROPORTIONS OF MARK**
Class attendance and participations	60	0	
Seminar essay	10	0	
Written exam	10	0	100%
Oral exam	0	0	

Further clarification:
Exam is written
According to the regulations of the study, final grade is obtained:
A = 91-100% 5
B = 79 to 90% 4
C = 67 to 78% 3

D = 55 to 66% 2 F = 0 to 54% 1	
Required literature:	1. Mišigoj Duraković M. Physical Activity and Health. Zagreb, Faculty of Kinesiology; 1999
Optional literature:	
Additional information about the course	Methods of monitoring the quality of teaching: student survey Quality control analysis by the students and teachers Analysis of passing the exams The report of the Office for the quality of teaching

Annexes: calendar classes

3rd Year of Study

Name of the course	**Pathology**				**Code**	
Type of study program Cycle	Integrated study program, Medicine				**Year of study**	III
Credits (ECTS):	**19**	*Semester*	V		Number of hours per semester (l+e+s)	210 (74+62+74)
Status of the course:	mandatory	*Preconditions:*	Passed all exams of the 2nd year	*Comparative conditions:*		
Access to course:	Third year students			*Hours of instructions:*		According to schedule
Course teacher:	Assistant professor Joško Petričević, MD, PhD					
Consultations:	Working days 11:00 – 12:00, or by appointment					
E-mail address and phone number:	josko.petricevic@yahoo.com					
Associate teachers	Professor Snježana Tomić, MD, PhD; Professor Valdi Pešutić Pisac, MD, PhD; Associate professor, Violeta Šoljić, MD, PhD; Jelena Todorović Barbuscia, MD, PhD; Dragana Karan-Križanac, MD, PhD Đani Godler, MD, MSc Sanja Draganović, MD					
Consultations:	As agreed					
E-mail address and phone number:						

<table>
<tr><td>The aims of the course:</td><td colspan="4">The aim of the Pathology course is to teach students basic pathology and to introduce them with various diseases from an anatomic and a pathophysiologic point of view, with a strong emphasis on clinical-pathologic correlations.
During this course the students will learn to recognize the abnormal morphological changes in cells, tissues and organs, and link these changes to the abnormal functions of the affected structures. During the program, students assist the autopsies at the Department of Pathology.</td></tr>
<tr><td>Learning outcomes (general and specific competences):</td><td colspan="4"><u>General outcomes:</u>
• Applying the independent learning through the study in the way of critical and self-critical questioning of scientific truth.
• Remembering the possesion of personal qualities: team work and personal contribution during the seminars that include clinical examples of diseases of different organs and organ systems.

<u>Specific outcomes:</u>
• Understanding the pathogenesis of various pathologic lesions, i.e. the mechanisms which lead to pathologic changes.
• The clinical consequences of altered morphology and function will be included to emphasize the clinical orientation of the entire course.
• Understanding the cell appearance, anatomical make up and chemical signatures within cells through macroscopic and microscopic analysis of samples from tissues and organs.
• Applying the postmortem examination, another important segment of the pathology during the practical training, in order to determinate the cause of death.</td></tr>
<tr><td>Course content (Syllabus):</td><td colspan="4">The course will be presented in form of 37 teaching units. Every teaching unit is composed of lectures and seminars. Laboratory sessions are divided in 31 units which thematically follow the contents of the lectures and seminars.</td></tr>
<tr><td rowspan="3">Format of instruction (mark in bold)</td><td>Lectures</td><td>Exercises</td><td>Seminars</td><td>Independent assignments</td></tr>
<tr><td>Consultations</td><td>Work with mentor</td><td>Field work</td><td>Other</td></tr>
<tr><td colspan="4">Remarks:
The teaching of each unit begins with a lecture, followed by seminars and exercises. During the seminar lesson, students resolve problem tasks in small groups; at the end of the seminar students take quiz-test, and then analyze the correct answers with explanations of problems. The course will include the study of autopsies, microscopic slides, visual and textual material stored in an electronic form and the required textbook. During the program, students assist the autopsies at the Department of Pathology.</td></tr>
</table>

Student responsibilities	Final exam; Seminar quiz-test; macroscopic and microscopic examination of affected organs; attendance and participation in class. Students will be evaluated based on: • Active participation in seminars and exercises. • Preparation of teaching units for seminars • Problem solving • Work in small groups			
Screening student work (mark in bold)	**Class attendance**	**Class participations**	**Seminar essay**	**Practical training**
	Oral exam	**Written exam**	**Continuous assessment**	Essay

Detailed evaluation within a *European system of points*

STUDENTS RESPONSIBILITIES	**HOURS**	**PROPORTIONS OF ECTS CREDITS**	**PROPORTIONS OF MARK**
Class attendance and participations	30	1	0%
Seminar essay	165	5,5	33%
Written exam	165	5,5	33%
Oral exam	210	7	34%

Further clarification:

WRITTEN EXAM

The final exam is comprehensive and is designed to test student's knowledge of the entire material covered in this course, including general and organ system pathology.
The written exam is administered in two mandatory partial exams (P1 and P2) and one mandatory final exam.
The first partial exam (P1) includes general pathology, cardiovascular system, the respiratory system and the hematopoietic and lymphoid system.
The second partial exam (P2) includes the rest of the chapters.
Each partial exam test has 150 multiple choice questions. The first 30 questions (practical examination) relate to the electronic images shown during the course and stored on the CD.
The remaining 120 multiple choice questions are the theoretical part of the exam. These two components of the examination are scored together, and 150 correct answers will be counted as 100%.
The students need to correctly answer at least 60% of questions to pass the partial exam (90 correct answers).
Scores:
90 – 104 (2)
105 – 119 (3)
120 – 134 (4)
134 – 150 (5)
Results from partial exams, taken during the course, are valid only untill the end of the respective academic year.

ORAL EXAM

The oral exam consists of 6 questions (2 questions from general pathology, 4 questions from special pathology). Students draw cards with certain questions, and it is not allowed to change the drawn cards. **The final grade** for the entire course is calculated by adding scores from all partial exams (P1 – 1/3 of the final score; P2 – 1/3 of the final score), and oral exam (1/3 of the final score).	
Required literature:	8. Damjanov I, Seiwerth S, Jukić S, Nola N. Patologija, IV izdanje, Medicinska naklada Zagreb 2014. 9. Educational CD 10. Nola M, Damjanov I i sur. Patologija. Priručnik za pripremu ispita, Medicinska naklada Zagreb, 2008.
Additional literature:	• Mladen Belitza: Obdukcijska dijagnostika, II dopunjeno izdanje, Medicinska naklada Zagreb
Additional information about the course	Monitoring methods of teaching quality: - student questionnaire - quality analysis by students and teachers - exam results analysis - report of the office for teaching quality - external evaluation (visit of team for quality control)

Annexes: calendar classes

The number of teaching units	**TOPICS AND LITERATURE**
I.	Title: **CELL PATHOLOGY I**
	Short description: *Cell Injury. Reversible Cell Injury. Intracellular Accumulations. Cellular Adaptation*.
	Literature: AAforementioned required and additional literature
II.	Title: **CELL PATHOLOGY II**
	Short description: *Irreversible Cell Injury*
	Literature: AAforementioned required and additional literature
III.	Title: **INFLAMMATION – PART I**
	Short description: *Types of inflammation. Signs of inflammation. Components of inflammatory reaction. Cellular recruitment. Chemical mediators.*
	Literature: Aforementioned required and additional literature
IV.	Title: **INFLAMMATION – PART II**
	Short description: *Acute inflammation. Defects in leukocyte function. Wound healing. Chronic inflammation. Morphologic types of acute and chronic inflammation. Systemic manifestations of inflammation.*
	Literature: Aforementioned required and additional literature
V.	Title: **FLUID AND HEMODYNAMIC DISORDERS**
	Short description: *Edema. Dehydration. Hyperemia. Congestion. Hemorrhage. Hemostasis and Thrombosis. Embolism. Infraction. Shock.*
	Literature: Aforementioned required and additional literature
VI.	Title: **IMMUNOPATHOLOGY – PART I**

	Short description: *Hypersensitivity reactions. Immune reactions to transplanted organs and tissues*
	Literature: Aforementioned required and additional literature
VII.	Title: **IMMUNOPATHOLOGY – PART II**
	Short description: *Autoimmune Diseases. Immunodeficiency Diseases. Amyloidosis.*
	Literature: Aforementioned required and additional literature
VIII.	Title: **NEOPLASIA – PART I**
	Short description: *Classification of Neoplasms. Biology of Invasion and Metastasis. Epidemiology of Neoplasms.*
	Literature: Aforementioned required and additional literature
IX.	Title: **NEOPLASIA – PART II**
	Short description: *Carcinogenesis. Tumor Immunology. Clinical Features of Cancer. Diagnostic laboratory tests in Oncology.*
	Literature: Aforementioned required and additional literature
X.	Title: **GENETIC AND DEVELOPMENTAL DISEASES**
	Short description: *Principles of Teratology. Errors of Morphogenesis. Chromosomal Abnormalities. Single Gene Abnormalities. Multifactorial Inheritance. Diseases of Infancy and Childhood. Birth Injury. Erythroblastosis Fetalis. SIDS.*
	Literature: Aforementioned required and additional literature
XI.	Title: **THE CARDIOVASCULAR SYSTEM – BLOOD VESSELS**
	Short description: *Atherosclerosis. Hypertensive Vascular Disease. Vasculitis. Aneurysms. Veins. Lymphatic Vessels. Tumors of Blood Vessels. Tumors oft he Lymphatic System.*
	Literature: Aforementioned required and additional literature
XII.	Title: **THE CARDIOVASCULAR SYSTEM – PART I**
	Short description: *Pathology of Heart Failure. Congenital Heart Disease. Ischemic Heart Disease. Hypertensive Heart Disease.*
	Literature: Aforementioned required and additional literature
XIII.	Title: **THE CARDIOVASCULAR SYSTEM – PART II**
	Short description: *Acquired Valvular and Endocardial Diseases. Primary Myocardial Diseases. Diseases of the Pericardium. Cardiac Tumors. Heart Transplantation.*
	Literature: Aforementioned required and additional literature
XIV.	Title: **THE RESPIRATORY SYSTEM – PART I**
	Short description: *Larynx. Congenital Anomalies of the Lungs. Atelectasis. Vascular Lung Diseases. Pneumonia.*
	Literature: Aforementioned required and additional literature
XV.	Title: **THE RESPIRATORY SYSTEM – PART II**
	Short description: *Chronic Obstructive Pulmonary Diseases. Restrictive Pulmonary Diseases. Tumors. Diseases of the Pleura. Mediastinal Diseases.*
	Literature: Aforementioned required and additional literature
XVI.	Title: **THE HEMATOPOIETIC AND LYMPHOID SYSTEM - PART I**
	Short description: *Anemia. Policytemia. Disorders of Hemostasis.*
	Literature: Aforementioned required and additional literature

XVII.	Title: **THE HEMATOPOIETIC AND LYMPHOID SYSTEM - PART II**
	Short description: *Quantitative disorders of white blood cells. Neoplastic Disorders of Bone Marrow. Lymhadenitis. Lymphadenopatia. Non-Hodgkin Lymphoma. Neoplastic Disorders of Histiocytes and Dendritic Cells.*
	Literature: Aforementioned required and additional literature
XVIII.	Title: **HEAD AND NECK PATHOLOGY**
	Short description: *Nose and Paranasal Sinuses. Nasopharynx. Oral Cavity. Peridontal Diseases. Salivary Glands. Ear. Eye.*
	Literature: Aforementioned required and additional literature
XIX.	Title: **DERMATOPATHOLOGY**
	Short description: *Heritable Skin Diseases. Infectious Diseases. Immunological Diseases. Systemic Manifestations. Idiopathic Skin Diseases. Neoplasms.*
	Literature: Aforementioned required and additional literature
XX.	Title: **THE GASTROINTESTINAL SYSTEM – PART I**
	Short description: *Diseases of the esophagus. Diseases of the stomach and duodenum.*
	Literature: Aforementioned required and additional literature
XXI.	Title: **THE GASTROINTESTINAL SYSTEM – PART II**
	Short description: *Disease of the small and large intestine. Appendix. Peritoneum.*
	Literature: Aforementioned required and additional literature
XXII.	Title: **THE LIVER AND BILIARY SYSTEM – PART I**
	Short description: *Clinical Evaluation of Hepatic Diseases. Vascular Hepatic Disorders. Hepatitis. Toxic Liver Injury. Infections. Chronic Hepatic Disorders.*
	Literature: Aforementioned required and additional literature
XXIII.	Title: **THE LIVER AND BILIARY SYSTEM – PART II**
	Short description: *Immunological Hepatic Disease. Cirrhosis. Tumors and Tumor like Lesions. The Gallblader and Extrahepatic Bile Ducts.*
	Literature: Aforementioned required and additional literature
XXIV.	Title: **THE PANCREAS**
	Short description: *Developmental abnormalities; Inflammatory diseases. Diabetes. Neoplasms. Neuroendocrine Tumors.*
	Literature: Aforementioned required and additional literature
XXV.	Title: **THE URINARY TRACT – PART I**
	Short description: *Developmental disorders of the Kidney. Glomerular diseases.*
	Literature: Aforementioned required and additional literature
XXVI.	Title: **THE URINARY TRACT – PART II**
	Short description: *Tubulointerstitial diseases. Vascular diseases. Urolithiasis. Tumors of the Kidney. Ureter. Urinary Bladder. Urethra.*
	Literature: Aforementioned required and additional literature
XXVII.	Title: **BONES AND JOINTS – PART I**
	Short description: *Developmental and genetic disorders. Infections. Metabolic disorders. Bone Fracture. Neoplasms of the Bone.*

	Literature: Aforementioned required and additional literature
XXVIII.	Title: **BONES AND JOINTS – PART II; MUSCLES AND PERIPHERAL NERVES**
	Short description: *Joints. Soft tissue Tumors. Peripheral Nerve. Skeletal Muscle. Neuromuscular diseases.*
	Literature: Aforementioned required and additional literature
XXIX.	Title: **THE BREAST**
	Short description: *Developmental abnormalities; Inflammatory diseases, Fibrocystic Change and Proliferative Breast Disease,Tumors, Stromal breast tumors, Male breast pathology*
	Literature: Aforementioned required and additional literature
XXX.	Title: **THE MALE REPRODUCTIVE SYSTEM**
	Short description: *Developmental abnormalities, Inflammatory diseases, Vascular disorders, Infertility, Tumors*
	Literature: Aforementioned required and additional literature
XXXI.	Title: **THE FEMALE REPRODUCTIVE SYSTEM – PART I**
	Short description: *Developmental abnormalities, Inflammatory diseases;Vulva; Vagina,Cervix, Uterus.*
	Literature: Aforementioned required and additional literature
XXXII.	Title: **THE FEMALE REPRODUCTIVE SYSTEM – PART II**
	Short description: *Fallopian tube; Ovary, Endometriosis; Placenta and Pathology of pregnancy*
	Literature: Aforementioned required and additional literature
XXXIII.	Title: **THE ENDOCRINE SYSTEM – PART I**
	Short description: *Pituitary diseases, Thyroid diseases*
	Literature: Aforementioned required and additional literature
XXXIV.	Title: **THE ENDOCRINE SYSTEM – PART II**
	Short description: *Diseases of the parathyroid glands, Diseases of the adrenal cortex, Diseases of the adrenal medulla; Multiple Endocrine Neoplasia*
	Literature: Aforementioned required and additional literature
XXXV.	Title: **THE NERVOUS SYSTEM – PART I**
	Short description: *General pathology of central nervous system; Developmental disorders; Trauma*
	Literature: Aforementioned required and additional literature
XXXVI.	Title: **THE NERVOUS SYSTEM – PART II**
	Short description: *Cerebrovascular diseases, Infections*
	Literature: Aforementioned required and additional literature
XXXVII.	Title: **THE NERVOUS SYSTEM – PART III**
	Short description: *Demyelinating diseases,Toxic and Metabolic diseases Neurodegenerative diseases, Tumors*
	Literature: Aforementioned required and additional literature

Name of the course:	**Pathophysiology**	***Code***	
Type of study program,	Integrated study program, Medicine	***Year of study:***	III

Cycle:					
Credits (ECTS):	**11**	***Semester:***	V.	***Number of hours per semester (l+e+s):***	135 (45+30+60)
Status of the course:	Mandatory	***Preconditions:***	Successfully passed 1st and 2nd year exames	***Comparative conditions:***	
Access to course:	Third year students			***Hours of instructions:***	According to the course schedule

Course teacher:	Full professor Zlatko Trobonjača, MD, PhD
Consultations:	Arranged if needed in agreement with students (during and after the course)
E-mail address and phone number:	zlatko.trobonjaca@uniri.hr
Associate teachers:	Associate professor Hrvoje Jakovac, MD, PhD Assistant professor Slavica Ćorić, MD, PhD Marija Šandrk, MD, MSc Borko Rajič, MD, MSc Ante Mandić, MD Daniela Bevanda Glibo, MD
Consultations:	Arranged if needed in agreement with students (during and after the course)
E-mail address and phone number:	hrvoje.jakovac@medri.uniri.hr corics545@gmail.com marija.sandrk@gmail.com borkorajic@gmail.com ante.mandic@live.com ela.bevanda@gmail.com
The aims of the course:	The aims of this course are to: enable students to apply the previously acquired knowledge from the first and second year of study, and especially from the Physiology course where they have learned about the normal function of organic systems, to get acquainted with the etiopathogenic mechanisms that lead to disorders of the function of the organism and disease occurrence; introduce students with pathophysiological processes that are characteristic for particular functional units and the entire patient's organism; through the integration of basic medical courses knowledge with implications on clinical events, learn about etiology, pathogenesis and course of disease development; direct students to a pathophysiological way of observation and meaningful interpretation of the development of certain diseases in accordance with evidence-based medicine.

Learning outcomes (general and specific competences):	During the Pathophysiology course students are expected to: 1. develop the ability to independently use medical literature, critically evaluate media or professional publications about the normal and pathological function of the organism, argumentation and competent discussion of pathophysiological topics; 2. be trained in seeking relevant medical information on the Internet through a critical way of thinking; 3. understand the interdisciplinary nature of biomedical science; 4. develop the skills needed for professional development in medicine (independent work, planning of work and time management, organizational abilities); 5. improve the level of oral and written communication that will enable them to be able to explain the significance of pathophysiological findings; 6. develop the ability to evaluate the importance of modern medical techniques for the development of science and entrepreneurship in the field of biotechnology. Specific outcomes - After attending the Pathophysiology course students are expected to: 1. understand the principles of physiological feedback, know how to determine the homeostatic mechanisms of the major functional systems, and explain the pathophysiological principles of the disease; 2. recognize the relativity of etiologic factors, distressors, stressors and stimuli in relation to the origin, development and intensity of the etiopathogenic processes; 3. understand the relationships between organic systems in a healthy person and the pathogenic mechanism of major systemic diseases; 4. acquire basic knowledge for the interpretation of general reaction forms of the organism and for understanding of the basic pathophysiological processes in systematic response; 5. learn to integrate and interpret etiopathogenic processes; 6. know the principles of basic functional tests and recognize deviations from normal values; 7. know how to analyze and interpret graphical schemes and descriptions of etiopathogenetic relationships in clinical, experimental and laboratory data; 8. know how to evaluate the functional reserve of the functional system, and to understand latent insufficiency tests; 9. describe major pathophysiological processes at the cellular level; 10. explain the pathogenic causes, course and consequences of energy metabolism disorders; 11. understand the etiopathogenic factors of malignant transformation of human cells; 12. know the disorders in blood and plasma composition, and the disorders in maturation and function of the hematopoetic organs;

<table>
<tr><td></td><td colspan="4">13. know to describe the main etiologic factors and pathogenic mechanisms that cause disorders in the function of the immune system;
14. know basic etiologic factors and pathogenetic mechanisms that cause disorders in the function of the heart, circulatory system, urogenital system and respiratory system;
15. be able to explain the disturbed metabolism of basic and specific nutrients and mechanisms responsible for the disturbed function of the gastrointestinal, hepatobiliary and endocrinological systems;
16. know to recognize and interpret acid-base balance disorders and disorders of electrolytic homeostasis;
17. describe the osmolality and hydration disorders of the body, and the distribution of fluid in the body;
18. describe specific disorders of individual organs function in aging.</td></tr>
<tr><td>Course content (Syllabus):</td><td colspan="4">Course consists of lectures, seminars and exercises. Conceptually, the content of the teaching entities can be divided into: introduction to pathophysiology, general disorders of the organism function, etiologic factors in the development of the diseases, disorders of the individual functional systems of the organism. During the course, a continuous assessment of knowledge is carried out. There are two partial written exams, a final written exam and an oral exam.</td></tr>
<tr><td rowspan="3">Format of instruction (mark in bold):</td><td>Lectures</td><td>Exercises</td><td>Seminars</td><td>Independent assignments</td></tr>
<tr><td>Consultations</td><td>Work with mentor</td><td>Field work</td><td>Others</td></tr>
<tr><td colspan="4">Remarks: Pathophysiology course is organised as a block in fifth semester of the study. Lectures last two school hours, and seminars and exercises for three school hours. Seminars and exercises prepare students for individual problem solving and integrative consideration of health and disese. At seminars and exercises, students actively discuss with a teacher about physiological and pathophysiological mechanisms, and the teacher mainly plays a "moderator" role in discussing. At seminars and exercises, students receive individual assignments that are solved independently or in small groups. The teacher evaluates the participation of students in seminars and exercises (demonstrated knowledge, understanding, problem solving, conclusion, etc.). The points "earned" during the course are added to the points obtained on the final exam. During course block, but also outside the latter, teachers are available for consultation in agreement with students.</td></tr>
<tr><td>Student responsibilities:</td><td colspan="4">Students are required to attend classes. If students were absent from the some class, they should access the oral exam from that part of the course. If the student was absent for more than 20% of the tuition, she or he can not take the final exam, i.e. student must attend the course in the next academic year (according to the Regulations on Integrated Studies at the Mostar University School of Medicine). Students prepare in advance the themes discussed in the lectures and particularly in the seminars and</td></tr>
</table>

	exercises, so that they can actively participate in discussion. During the seminars and exercises, students solve the planned tasks alone or in small groups.			
Screening student work (mark in bold):	**Class attendance**	**Class participations**	Seminar essay	**Practical training**
	Oral exam	**Written exam**	**Continous assesment**	Essay

Detailed evaluation within a European system of points:

STUDENTS RESPONSIBILITIES	**HOURS**	**PROPORTIONS OF ECTS CREDITS**	**PROPORTIONS OF MARK**
Class attendance and participations	135 hours (27 hours ~ 1 ECTS)	5	/
Partial tests 1 and 2	60	2	80%
Final written exam	90	3	
Oral exam	30	1	20%

Further clarification:

Evaluation of students' work is carried out during the course and at the final exam. During the course the student can achieve a maximum of 30 points, and on the final exam a maximum of 70 points, i.e. in sum a maximum of 100 points.

I. During the course, the following activities (up to 30 points) are evaluated:

1) Demonstrated knowledge (up to 20 points) – During the course, there are two partial tests with 50 questions and by each test student can get a maximum of 10 points.
2) Activity during the seminars and exercises (up to 10 points) – Maximum of 10 points can be gained through activity and demonstrated knowledge in seminars and exercises. Students are rated in the range of 1 – 5 according to oral answer or written test at the end of a seminar/exercise. The score scale is determined by the absolute distribution of the grade means obtained by adding all grades from the seminars and exercises (a total of 30 teaching units) and dividing up by the number 30 (or less if the student was absent or not evaluated). Points can only be awarded to students who have been evaulated at least in 10 seminars and 5 exercises.

II. Final exam (maximum 70 points): The final exam is conducted in written form. The exam consists of 100 questions. This exam examines the key, specific competencies that are determined for each unit in particular. At the final exam, the student can only earn points if she or he has solved 55% questions.

III. Final grade (maximum 100 points) from parts I + II: The final grade is determined by the sum of the points acquired during the course and the final exam based on the absolute distribution.

IV. The final grade obtained on the written test is verified on the oral exam. The final grade that is written in the index generally does not deviate more than 1 from grade on the written part. If the student on the oral exam got the grade inadequate (1), she or he must take the oral exam again.

Required literature:	1. Gamulin S, Marušić M, Kovač Z, et al. Pathophysiology. Medicinska naklada, Zagreb, 2013. 2. Kovač Z, Gamulin S, et al. Pathophysiology – integrative problem based seminars. Medicinska naklada, Zagreb, 2011.

	3. Kovač Z, et al. Clinical pathophysiology – etiopathogenetic clusters. Medicinska naklada, Zagreb, 2013. 4. Guyton AC, Hall JE. Textbook of Medical Physiology, 13th ed. Saunders, 2015.
Optional literature:	1. Andreis I, Batinić D, Čulo F, Grčević D, Lukinović-Škudar V, Marušić M, Taradi M, Višnjić D. Immunology, 7th ed. Medicinska naklada, Zagreb, 2010. 2. Physiology, neurophysiology and immunology exercise manual. Department of physiology, immunology and pathological physiology, University of Rijeka School of Medicine, 2001. (available at http://sp.medri.hr/Studenti/. 3. Silbernagl S, et al. Color Atlas of Pathophysiology. Georg Thieme Verlag, Stuttgart. 4. Smith LH, et al. Pathophysiology, The Biological Principles of Disease. Saunders Co., Philadelphia. 5. McPhee SJ, et al. Pathophysiology of Disease: An Introduction to Clinical Medicine. Appleton&Lange, Stanford.
Additional information about the course:	Means of quality assessment of the course: student questionnaire, quality analysis by students and teachers, analysis of the exam pass rates, report of the Teaching Quality Office, self-evaluation and extraneous evaluation (visits of quality assessment teams).

Annexes: calendar classes

TOPICS AND LITERATURE:

LECTURES

1. Introduction to pathophysiology. General causes and development of pathophysiological processes. Homeostatic mechanisms. Health and disese. Integrative approach to the disease.
2. Principles of pathogenic mechanisms and the onset of disease.
3. Inflammatory reaction.
4. Immunopathophysiology. HLA in pathogenesis. The tissue response reactions.
5. Immunodeficiency. Autoimmunity.
6. Malignant transformation and growth. Energy metabolism disorders.
7. Erythrocyte disorders.
8. Leukocyte disorders.
9. Endogenous biological compounds in the pathophysiological process.
10. Cardiac output and venous return disorders. Cardiac function disorders. Congenital heart defects.
11. Coronary circulation disorders and ischemic heart disease.
12. Arterial pressure disorders. Hypertension. Tissue blood supply disorders.
13. Circulatory shock.
14. Overview of renal function disorders.
15. Overview of respiratory disturbances.
16. Pathophysiology of aging.
17. Pathophysiology of the digestive system. Exocrine pancreatic function disorders - acute and chronic pancreatitis.
18. Endocrine disorders of the pancreas. Diabetes mellitus.
19. Causes of endocrinopathies. Disorders of pituitary function. Thyroid function disorders.

20. Adrenal glands disorders.
21. Sex glands disorders.
22. Parathyroid gland disorders. Calcium, phosphate and magnesium metabolism disorders. Connective and bone tissue disorders.
23. Reaction to the pathogenic noxa.

SEMINARS

1. Pathophysiology of DNA: Microlesions, chromosomal aberrations, genomic instability. Gene expression disorders. Inheritance metabolic diseases.
2. Subcellular structure disorders.
3. Atopic and transfusion reactions. Immunoreactivity tests.
4. Disorders of the structure and function of blood and hematopoetic organs.
5. Cardiac conduction sytem disorders. Complex rhythm disorders.
6. Heart failure.
7. Arterial pressure and blood flow disorder.
8. Circulatory shock.
9. Osmolality and hydration disorders. Disorders of extracellular fluid distribution.
10. Disturbance of urine volume and composition.
11. Pathophysiology of respiratory system.
12. Disorders of electrolytic homeostasis.
13. Acid-base balance disorders.
14. Carbohydrate and protein metabolism disorders. Dietary disorders.
15. Lipid metabolism disorders. Atherosclerosis.
16. Pathophysiology of the liver.
17. Energy metabolism disorders. Thermoregulation disorders.
18. Specific metabolic substances disorders.
19. Metabolic syndrome.

EXERCISES

1. Leukocytes and monocyte-macrophage system. Biological etiological factors.
2. Physical and chemical etiological factors.
3. Plasma proteins disorders. Spleen function disorders. Hematologic laboratory tests.
4. Hemostasis disorders.
5. Electrocardiographic interpretation of cardiac muscle and coronary blood flow abnormalities, vectorial analysis.
6. Cardiac arrhythmias and their ECG interpretation. Pathological ECG.
7. Digestive and metabolic disorders.
8. Pathophysiology of the liver and exocrine pancreas.
9. Endocrinopathies.
10. Disorders of conception, pregnancy, development and child growth. Sexual function disorders.

Literature: required and optional.
(Detailed plan of specific thematic units with learning outcomes is attached.)

Name of the course	**Medical Microbiology and Parasitology**				**Code**	
Type of study program Cycle	Integrated study program, Medicine				**Year of study**	III
Credits (ECTS) :	**8**	*Semester*	V		Number of hours per semester (l+e+s)	95 (21+44+30)
Status of the course:	required	*Preconditions:*	Passed all exams of the 2nd year	*Comparative conditions:*		
Access to course	Third year students			*Hours of instructions*:		According to schedule

Course teacher:	Professor Maja Abram, MD, PhD
Consultations:	during lectures every day; by e-mail daily
E-mail address and phone number:	maja.abram@medri.uniri.hr ; +385 51 651 208
Associate teachers *Assistants*	Professor Darinka Vučković, MD, PhD Professor Marija Tonkić Associate professor. Ivana Goić Barišić Sanja Jakovac, MD, MSc Tanja Petrović, MD, MSc
Consultations:	during lectures every day; by e-mail daily
E-mail address and phone number:	darinka.vuckovic@medri.uniri.hr; +385 51 651 172
The aims of the course:	The objectives of this course are: To specify the basic biological features of microorganisms (bacteria, viruses, fungi and parasites) that cause infections in humans, their factors virulence, spread and resistance to environmental conditions, ways of transferring and base defense of human infection. To enumerate and link types of vaccines with specific microorganisms. To classify the basic groups of antimicrobial drugs and the spectrum of action, mechanism of their action on the bacterial cell and mechanisms of bacterial resistance to antimicrobial drugs. Also, the aim is to establish possibilities of treating fungal, parasitic and viral infections. To gain insight into the basic microbiological diagnostics procedures, with special emphasis on microbial treatment of the most common clinical specimens.
Learning outcomes (general and specific competences):	General outcomes: Applying the independent learning through the study in the way of critical and self-critical questioning of scientific truth.

<table>
<tr><td></td><td colspan="4">Remembering the possession of personal qualities of personality (team work and personal contributions, interest, active listening and construction positive relationships with members of the group)
<u>Specific outcomes:</u>
Understanding the use of the microscope with immersion, bacteriological process of the most common biological materials.
Remembering the bacteria to genus/species.
Applying the skill of reading and interpretation of an antibiogram.
Evaluation of the most common viral, fungal and parasitic infections and appropriate therapy.
Outcomes will be evaluated with continuous knowledge tests during lectures, seminars and exercises (filling workbooks), and also with final exercise and oral examination.</td></tr>
<tr><td>Course content (Syllabus):</td><td colspan="4">Course Microbiology consists of 20 thematic units
(21 lectures, 30 seminars, 44 exercises). Knowledge will be continuously checked during all forms of teaching for which the students are required to be prepared according to syllabus. During the classes 2 partial written exams will be held (from bacteriology and from virology, parasitology and mycology) and final practical exercise. The final exam is oral.</td></tr>
<tr><td rowspan="3">Format of instruction (mark in bold)</td><td>Lectures</td><td>Exercises</td><td>Seminars</td><td>Independent assignments</td></tr>
<tr><td>Consultations</td><td>Work with mentor</td><td>Field work</td><td>Other</td></tr>
<tr><td colspan="4">Remarks:</td></tr>
<tr><td>Student responsibilities</td><td colspan="4">All forms of teaching (lectures, seminars, laboratory exercises) are mandatory. Every student is expected to attend all teaching units, actively participate in discussions and laboratory exercises. In microbiological laboratory students must wear protective coat and have workbook which is available on the website MF Mostar, Department of Microbiology. The rules of behavior and safe work in the lab are listed on the first page of the workbook.
Also students are obligated to implement antiseptic procedures for hands hygiene according to the instructions specified in the workbook. Before the first entry to laboratory, students are required to read all the rules and their signature will guarantee that they are observed.
Attendance and activity in the classroom for each student will be recorded. Continuous assessment will be provided during all forms of teaching for which the students are required to be prepared according to syllabus.</td></tr>
<tr><td rowspan="2">Screening student work (mark in bold)</td><td>Class attendance</td><td>Class participations</td><td>Seminar essay</td><td>Practical training</td></tr>
<tr><td>Oral exam</td><td>Written exam</td><td>Continuous assessment</td><td>Essay</td></tr>
</table>

Detailed evaluation within a *European system of points*				
STUDENTS RESPONSIBILITIES	**HOURS**	**PROPORTIONS OF ECTS CREDITS**	**PROPORTIONS OF MARK**	
Class attendance and participations	30	1	0%	
Written exam	90	3	54%	
Practical exam	40	1,5	16%	
Oral exam	75	2,5	30%	

Further clarification:

ECTS system of evaluation:

Assessment of the students is carried out under the applicable **Regulations on studying at the University of Mostar.**

Students' work will be evaluated and assessed during the teaching and the final exam.

From a total of **100 graded points**, while teaching a student can achieve **70 points of grade** (70% grade), and on the final examination **30 points** of grade (30% grade).

An assessment is made by applying ECTS (A-D, F) and the number system (1-5).

During the course, a student can earn a maximum of graded 70 points. Students achieve assessment points by taking colloquia (3) as follows:

• During the course, **all students are required to take the written exam-I**, which comprises material from the general and special bacteriology. Pacing threshold is 55%. It is possible to achieve 19-27 of assessment points on the test (% score) (according to Table 1).

• During the course, **all students are required to take the written exam-II** wich covers material from virology, mycology and parasitology. Passing threshold is 55%. It is possible to achieve 19-27 of assessment points on the test (% score) (according to Table 1).

Table 1. Method of scoring written examination (passing threshold of 55%)

The percentage of correct answers	Number of points
55-59,99%	19
60-64,99%	20
65-69,99%	21
70-74.99%	22
75-79,99%	23
80-84,99%	24
85,89,99%	25
90-94,99%	26
95-100%	27

• During the course, all students are required to access the practical colloquium on which threshold pass rate is 55%. It is possible to achieve 8-16 of graded points on a practical exam (% score) (according to Table 2).

Table 2. The method of scoring skill Colloquium (passing threshold of 55%)

The percentage of correct answers	Number of points
55-64,99%	8
65-74,99%	10
75-84,99%	12
85-94,99%	14
95-100%	16

Final exam (30 assessment points, or 30% of the grade)

The final oral exam may be taken by students that passed both theoretical and practical examination during classes.

A student at the final oral examination should be positively evaluated, and can achieve 9-15 assessment points (according to Table 3).

Table 3. The method of scoring the final oral exam

Evaluation	Rating Points
sufficient	9-14
good	15-20
very good	21-26
excellent	27-30

According to the Regulations on studying the final grade is obtained as follows:

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

Required literature:	1. S. Kalenic i sur.: Medicinska mikrobiologija, Medicinska naklada Zagreb, 2013. 2. Workbook , Department for microbiology, 2016-17.
Optional literature:	1. Jawetz, Melnick & Adelberg: Medicinska mikrobiologija, 26. izdanje, 1. hrvatsko izdanje, Placebo, Split, 2015.
Additional information about the course	The curriculum and all information related to the course and the test dates can be found on the web site of the Department of Microbiology. Monitoring methods of teaching quality: - student questionnaire - quality analysis by students and teachers - exam results analysis - report of the office for teaching quality - external evaluation (visit of team for quality control)

Annexes: calendar classes

The number of teaching units	**TOPICS AND LITERATURE**
I.	Title: Structure of bacterial cells. Hand hygiene.
	Short description: Bacterial classification and nomenclature; Structure of bacterial cells. Hand hygiene; Norman human microflora
	Literature: reqired and optional
II.	Title: Pathogenicity and virulence. Sterilization and disinfection.
	Short description: Pathogenesis of bacterial infections; Bacterial resistance to external conditions; Sterilization and disinfection
	Literature: reqired and optional
III.	Title: Laboratory diagnosis of bacterial infections.
	Short description: The collection and transport of clinical specimens. Basics of bacteria cultivation. Identification of bacteria: proving of metabolic activity of bacterium. Microscopy. Serological diagnosis.
	Literature: reqired and optional
IV.	Title: Antibiotics
	Short description: The mechanism of action of antibiotics on bacterial cell. Antibiotic resistance. Antibiogram.
	Literature: reqired and optional
V.	Title: Gram positive cocci.
	Short description: Staphylococci. Streptococci.
	Literature: reqired and optional
VI.	Title: Gram negative cocci and cocobacils.
	Short description: Haemophilus. Neisseriae. Bordetella, Moraxella, Brucella, Legionella, Francisella.
	Literature: reqired and optional
VII.	Title: Enterobacteriaceae.
	Short description: E. coli, Klebsiella, Serratia, Proteus, Morganella, Enterobacter, Salmonella, Shigella, Yersinia.
	Literature: reqired and optional
VIII.	Title: Curved bacetria.
	Short decription: Vibrio. Campylobacter. Helicobacter
	Literature: reqired and optional
IX.	Title: Nonferment bacteria.
	Short description: Pseudomonas. Acinetobacter.
	Literature: reqired and optional
X.	Title: Gram positive nonspore-forming rods.
	Short description: Corynebacterium, Listeria.
	Literature: reqired and optional
XI.	Title: Mycobacterium.
	Short description : Mycobacterium.
	Literature: reqired and optional
XII.	Title: Gram positive spore-forming rods
	Short description: Bacillus. Clostridium.
	Literature: reqired and optional

XIII.	Title: Atypical bacteria.
	Short description: Mycoplasma, Chlamydia, Rickettsia.
	Literature: reqired and optional
XIV.	Title: Spiral bacteria.
	Short description: Borrelia, Leptospira. Treponema.
	Literature: reqired and optional
XV.	Title: General virology.
	Short description: General characteristics of the virus. classification and nomenclature. Subviral particles. Antiviral drugs.
	Literature: reqired and optional
XVI.	Title: DNK viruses.
	Short description: Herpesviruses. Parvoviruses. Papilomaviruses. Adenoviruses.
	Literature: reqired and optional

Name of the course	**Pharmacology**			**Code**	
Type of study program Cycle	Integrated study program, Medicine			**Year of study**	III
Credits (ECTS) :	**10**	*Semester*	VI	Number of hours per semester (l+e+s)	135 (50+35+50)
Status of the course:	mandatory	*Preconditions:*	Passed all exams of the 2nd year	*Comparative conditions:*	
Access to course:	Third year students			*Hours of instructions*:	According to schedule
Course teacher:	Associate professor Ivica Brizić, MD, PhD				
Consultations:	Fridays at 1 PM, or by appointment				
E-mail address and phone number:	ibrizic@gmail.com +387 63 319 537				
Associate teachers	11. Danijela Budimir, MD, PhD 12. Filipa Markotić, MD, PhD 13. Ivan Merdžo, MD 14. professor Mladen Boban, MD, PhD 15. associate professor Ivana Mudnić, MD, PhD				
Consultations:	As agreed				
E-mail address and phone number:					

<table>
<tr><td>The aims of the course:</td><td colspan="4">Aims of this course are to acquire general principles of drug activity (pharmacodynamics) and its final outcome in the organism (pharmacokinetics), to understand mechanisms of drug effects, therapeutic effects and side effects, ways of administration, indications and contraindications of different drug groups, and to determine pharmacological characteristics of representative drugs from different drug groups. Also, aim of this course is for students to demonstrate proper prescription writing for different forms of drugs as well as using high quality pharmacology literature.</td></tr>
<tr><td>Learning outcomes (general and specific competences):</td><td colspan="4">• Understanding the general principles of drug activity (pharmacodynamics) and drug’s outcome in the organism (pharmacokinetics).
• Remembering the most important drugs that represent different pharmacotherapeutic groups, and their sort according to mechanisms of actions.
• Understanding the administration options, major indications, contraindications, and side effects of drugs that are main representatives of their specific groups and subgroups.
• Understanding the important drug interactions and their correlation with pharmacodynamic and pharmacokinetic characteristics of the drugs.
• Understanding a novel drug development process.
• Applying the correct dose calculation and prescription writing for different forms of drugs.
• Understanding the use of relevant domestic and international drug databases.</td></tr>
<tr><td>Course content (Syllabus):</td><td colspan="4">Pharmacology course consists out of 25 lectures, 25 seminars, and 11 exercises. Testing is performed during seminars, exercises, two partial written exams, final written exam, and the oral exam.</td></tr>
<tr><td rowspan="3">Format of instruction (mark in bold)</td><td>Lectures</td><td>Exercises</td><td>Seminars</td><td>Independent assignments</td></tr>
<tr><td>Consultations</td><td>Work with mentor</td><td>Field work</td><td>Other</td></tr>
<tr><td colspan="4">Remarks: Each class begins with lectures, followed by seminars and exercises.</td></tr>
<tr><td>Student responsibilities</td><td colspan="4">Attending and actively taking part in classes, passing pharmacography exam, two partial exams (or final written exam), and final oral exam. Students will be evaluated by:
• level of active participation in seminars and exercises
• preparedness for seminars
• reading course literature, development of their own critical thinking on the subject matter and expression of that opinion
• writing prescriptions</td></tr>
</table>

Screening student work (mark in bold)	**Class attendance**	**Class participations**	**Seminar essay**	**Practical training**
	Oral exam	**Written exam**	**Continuous assessment**	**Essay**

Detailed evaluation within a *European system of points*

STUDENTS RESPONSIBILITIES	**HOURS**	**PROPORTIONS OF ECTS CREDITS**	**PROPORTIONS OF MARK**
Class attendance and participations	15	0,5	0%
Written exam 1	75	2,5	25%
Written exam 2	75	2,5	25%
Oral exam	135	4,5	50%

Further clarification:
Conditions to take the Pharmacology exam are regular attendance at classes and passing the pharmacography test. Pharmacology exam consists of written (test) and oral part. Each of them contributes 50% to the final grade. During the Pharmacology course two partial written tests are done. First partial test consists out of 50 questions, and second partial test consists out of 60 questions. Students that makes total of 69 points on both of the partial tests can take the final oral exam. If student did not meet the 69 points mark on the partial tests, student can take the final written exam that consists out of 110 questions. To take the oral exam students must pass the final written test with minimum of 69 points.
Final written exam grading:
A = 100 - 110 points (5)
B = 90 - 99 points (4)
C = 80 – 89 points (3)
D = 69 - 79 points (2)
F = 0 - 68 points (1)

Required literature:	1. Bertram G. Katzung, Susan B. Masters, Anthony J. Trevor (editors): Basic and Clinical Pharmacology, Croatian translation of the 11th edition, Medicinska naklada, Zagreb, 2011. 2. V. Bradamante, M. Klarica, M. Šalković – Petrišić, (ed): Pharmacology Handbook. Medicinska naklada (second edition), Zagreb, 2008.
Optional literature:	1. H.P. Rang, M.M. Dale, J.M. Ritter, P.K. Moore: Pharmacology. Golden marketing - Tehnička knjiga Zagreb 2006.
Additional information about the course	Monitoring methods of teaching quality: - student questionnaire - quality analysis by students and teachers - exam results analysis - report of the office for teaching quality - external evaluation (visit of team for quality control)

Annexes: calendar classes

The number of teaching units	**TOPICS AND LITERATURE**
I.	Title: Introduction, absorption, distribution of drugs
2 lectures	Short description:

	Literature:
II. **2 lectures**	Title: Metabolism and drug elimination, pharmacokinetics
	Short description:
	Literature:
III. **2 lectures**	Title: Drug action mechanisms, pharmacodynamics
	Short description:
	Literature:
IV. **2 lectures**	Title: Pharmacology of ANS, cholinergic drugs
	Short description:
	Literature:
V. **2 lectures**	Title: Pharmacology of ANS, adrenergic drugs
	Short description:
	Literature:
VI. **2 lectures**	Title: Pharmacology of histamine, serotonin, and ergot alkaloids, NO
	Short description:
	Literature:
VII. **2 lectures**	Title: Anxiolytics, sedatives – hypnotics, antiepileptics
	Short description:
	Literature:
VIII. **2 lectures**	Title: Pharmacotherapy of most common neurodegenerative diseases
	Short description:
	Literature:
IX. **2 lectures**	Title: Antipsychotics, antidepressants
	Short description:
	Literature:
X. **2 lectures**	Title: Opioid analgesics
	Short description:
	Literature:
XI. **2 lectures**	Title: Addictions (heroin, cannabis, psychostimulants, alcohol)
	Short description :
	Literature:
XII. **2 lectures**	Title: General anesthetics
	Short description:
	Literature:
XIII. **2 lectures**	Title: Drugs for hypertension treatment
	Short description:
	Literature:
XIV. **2 lectures**	Title: Vasodilators in angina pectoris treatment
	Short description:
	Literature:
XV. **2 lectures**	Title: Diuretics
	Short description:
	Literature:
XVI. **2 lectures**	Title: Drugs for heart failure treatment
	Short description:
	Literature:

XVII. **2 lectures**	Title: Drugs for treatment of arrhythmias
	Short description:
	Literature:
XVIII. **2 lectures**	Title: Drugs for asthma treatment
	Short description:
	Literature:
XIX. **2 lectures**	Title: Drugs for coagulation disorders
	Short description:
	Literature:
XX. **2 lectures**	Title: Pancreatic hormones and drugs in diabetes treatment
	Short description:
	Literature:
XXI. **2 lectures**	Title: Antimicrobic drugs
	Short description:
	Literature:
XXII. **2 lectures**	Title: Drugs for malignant diseases treatment
	Short description:
	Literature:
XXIII. **2 lectures**	Title: Immunopharmacology
	Short description:
	Literature:
XXIV. **2 lectures**	Title: Drugs for peptic disease and laxatives
	Short description:
	Literature:
XXV. **2 lectures**	Title: Antidiarrhoeal drugs, antiemetics, and inflammatory bowel disease drugs
	Short description:
	Literature:
I. **2 seminars**	Title: New drug discoveries, generic drugs, and pharmacogenomics
	Short description:
	Literature:
II. **2 seminars**	Title: Drug's final outcome in the organism
	Short description:
	Literature:
III. **2 seminars**	Title: Actions of drugs, mechanisms of side effects
	Short description:
	Literature:
IV. **2 seminars**	Title: Cholinergic drugs
	Short description:
	Literature:
V. **2 seminars**	Title: Adrenergic drugs
	Short description:
	Literature:
VI. **2 seminars**	Title: Anxiolytics, antiepileptics, neurodegenerative diseases
	Short description:
	Literature:

VII. **2 seminars**	Title: Antipsychotics, antidepressants
	Short description:
	Literature:
VIII. **2 seminars**	Title: Nonsteroidal anti-inflammatory drugs, antirheumatics
	Short description:
	Literature:
IX. **2 seminars**	Title: Pain treatment
	Short description:
	Literature:
X. **2 seminars**	Title: Local anesthetics
	Short description:
	Literature:
XI. **2 seminars**	Title: Antihypertensives, drugs in angina pectoris treatment
	Short description:
	Literature:
XII. **2 seminars**	Title: Drugs in cardiac insufficiency treatment
	Short description:
	Literature:
XIII. **2 seminars**	Title: Drugs for treatment of hyperlipoproteinemias
	Short description:
	Literature:
XIV. **2 seminars**	Title: Drugs for treatment of arrhythmias
	Short description:
	Literature:
XV. **2 seminars**	Title: Drugs for treatment of anemias and hematopoietic growth factors
	Short description:
	Literature:
XVI. **2 seminars**	Title: Hormones of hypothalamus, pituitary gland, thyroid gland, and osteoporosis
	Short description:
	Literature:
XVII. **2 seminars**	Title: Hormones of the adrenal gland cortex and their antagonists
	Short description:
	Literature:
XVIII. **2 seminars**	Title: Sex hormones and their inhibitors
	Short description:
	Literature:
XIX. **2 seminars**	Title: Drugs in diabetes treatment
	Short description:
	Literature:
XX. **2 seminars**	Title: Most important antibiotics
	Short description:
	Literature:
XXI. **2 seminars**	Title: Drugs in treatment of fungi, protozoa, and helminths
	Short description:
	Literature:

XXII. **2 seminars**	Title: Drugs for viral and TBC infections
	Short description:
	Literature:
XXIII. **2 seminars**	Title: Application of drugs in children and elderly patients
	Short description:
	Literature:
XXIV. **2 seminars**	Title: Drug interactions and side effects
	Short description:
	Literature:
XXV. **2 seminars**	Title: Pharmacology of the digestive system
	Short description:
	Literature:
I. **4 exercises**	Title: Pharmacokinetics and pharmacodynamics
	Short description:
	Literature:
II. **4 exercises**	Title: ANS, isolated muscle
	Short description:
	Literature:
III. **2 exercises**	Title: Psychopharmacology drugs
	Short description:
	Literature:
IV. **2 exercises**	Title: Analgesics
	Short description:
	Literature:
V. **4 exercises**	Title: Effects of drugs on cardiovascular system
	Short description:
	Literature:
VI. **2 exercises**	Title: Isolated organs as pharmacological models
	Short description:
	Literature:
VII. **2 exercises**	Title: Dose calculations, ways of different drug administration
	Short description:
	Literature:
I. **4 pharmacography exercises**	Title: Introduction, magisterial preparations 1
	Short description:
	Literature:
II. **4 pharmacography exercises**	Title: Magisterial preparations 2
	Short description:
	Literature:
III. **4 pharmacography exercises**	Title: Galenic preparations and commercially available drugs
	Short description:
	Literature:
IV.	Title: Repetition and children doses

3 pharmacography exercises	Short description: Literature:

Name of the course	**Clinical Propedeutics**			**Code**	
Type of study program Cycle	Integrated study program, Medicine			**Year of study**	III
Credits (ECTS) :	**4,5**	*Semester*	VI	Number of hours per semester (l+e+s)	(100) 30+70+0
Status of the course:	mandatory	*Preconditions:*	Passed all exams of the 2nd year	*Comparative conditions:*	
Access to course:	Third year students			*Hours of instructions*:	According to schedule

Course teacher:	Professor Mladen Mimica, MD, PhD
Consultations:	As agreed
E-mail address and phone number:	mladen.mimica@tel.net.ba
Associate teachers:	Professor Izet Hozo, MD, PhD Professor Monika Tomić, MD, PhD Professor Milenko Bevanda, MD, PhD Professor Žarko Šantić, MD, PhD Assistant professor Mirjana Vasilj, MD, PhD Emil Babić, MD, PhD Sanda Miljko, MD, MSc Sanja Selak, MD, MSc Mile Volarić, MD, MSc
Consultations:	As agreed
E-mail address and phone number:	
The aims of the course:	Clinical propedeutics course is an introduction to clinical medicine. Students gain knowledge and skills necessary for patients' examination and meet the leading signs and syndromes in internal medicine.
Learning outcomes (general and specific competences):	General outcomes: • Understanding the Clinical propedeutics and clinical examination as base for branches of clinical medicine. Specific outcomes: • Applying a medical history taking, communication and care for patient. • Evaluation of essential and non-essential data.

	• Understanding, remembering and analyzing the key ethical and legislative principles of the independent approach to the patient and his family. • Understanding the theoretical basis of inspection, palpation, percussion, auscultation. • Analyzing the vital signs - heart rate, blood pressure, respiration, body temperature. • Applying the inspection of the head and neck, percussion and auscultation including a description of the mechanisms of changing percutaneous sound. • Remembering the theoretical part of the physical examination of the heart (percussion and auscultation of the heart). • Understanding the topography of the abdomen and remembering the technique of physical examination of the abdomen. • Analyzing the clinically significant changes in peripheral arterial pulse. • Evaluation of differential diagnosis of chest pain and abdominal pain. • Analyzing the most common causes of cough and hemoptysis. • Understanding the mechanisms of oedema appearance. • Remembering the manifestations of gastrointestinal bleeding (hematemesis, melena, haematochesia, occult blood). • Understanding the most common cause of bleeding from the gastrointestinal tract. • Synthesis and evaluation of the differential diagnosis of icterus, ascites and cardiac arrest.
Course content (Syllabus):	Introduction to clinical medicine and basic concepts of disease. Introducing students with clinical medicine; theoretical knowledge and practical skills required for a clinical examination of the patient and history taking; Physical examination of the patient - inspection, palpation, percussion, auscultation; General status of patients; Inspection of the head, neck and chest; Examination of the lungs and heart; Examination of the abdomen and extremities; Symptoms and signs of a disease (chest pain, abdominal pain, cough, and hemoptysis, dyspnea, hypoxia, polycythemia, cyanosis, edema, shock, cardiovascular collapse, heart failure, sudden death, gastrointestinal bleeding, jaundice, abdominal swelling, meteorism, ascites, micturition disorders; Basic laboratory and instrumental tests in clinical medicine; Qantitative aspects of clinical judgment. Interpretation of etiology and leading signs and symptoms of illness of the internal organs (the organ systems); introduction to the basic

	laboratory and instrumental examinations and proper interpretation of their results in diagnostic process.			
Format of instruction (mark in bold)	**Class attendance**	**Class participations**	**Seminar essay**	**Practical training**
	Oral exam	Written exam	**Continuous assessment**	Essay
	Remarks:			
Student responsibilities				
Screening student work (mark in bold)	**Lectures**	**Exercises**	Seminars	Independent assignments
	Consultations	**Work with mentor**	**Field work**	Other
	Remarks:			
Required literature:	Hozo Izet et al: Internistička propedeutika s vještinama komuniciranja u kliničkoj medicini, Hrvatsko gastroenterološko društvo, 2013.			
Optional literature:	Metelko Ž., Harambašić,H., et al: Internistička propedeutika i osnove fizikalne dijagnostike, Medicinska naklada, Zagreb, 1999			
Additional information about the course	Monitoring methods of teaching quality: - student questionnaire - quality analysis by students and teachers - exam results analysis - report of the office for teaching quality - external evaluation (visit of team for quality control)			

ANEX: Calendar classes

The number of teaching units	**TOPICS AND LITERATURE**
I.	Title: General propedeutics
	Short description: Introductory lecture. Introduction to hospital work. The concept of illness. Relationship of a doctor and a patient. Medical secret.
	Literature: required and optional
II.	Title: Anamnesis
	Short description: General information about the patient. Family history. Personal anamnesis. Social anamnesis
	Literature: required and optional
III.	Title: Examination of the patient
	Short description: Inspection, palpation, percussion, auscultation. Head and neck status. status. Chest status.
	Literature: required and optional
IV.	Title: Examination of the patient

	Short description: Lungs' examination. Heart examination, pulse, blood pressure. Abdominal status. Examination of legs and arms.
	Literature: required and optional
V.	Title: Basic laboratory tests.
	Short description:
	Literature: required and optional
VI.	Title: Instrumental tests
	Short description: ECG. X rays of the lungs and bones Endoscopic examinations. Ultrasound. Tests with radioisotopes. Computerized tomography. Nuclear magnetic resonance.
	Literature: required and optional
VII.	Title: Propedeutic of cardiovascular diseases.
	Short description:
	Literature: required and optional
VIII.	Title: Propedeutic of gastrointestinal, hepatal and pancreatic diseases
	Short description:
	Literature: required and optional
IX.	Title: Propedeutic of renal diseases
	Short description:
	Literature: required and optional
X.	Title: Propedeutika of hematologic diseases
	Short description:
	Literature: required and optional
XI.	Title: Propedeutika of endocrine and metabolic diseases
	Short description:
	Literature: required and optional
XII.	Title: Propedeutika of respiratory diseases
	Short description:
	Literature: required and optional
XIII.	Title: Propedeutics in surgery
	Short description:
	Literature: required and optional
XIV.	Title: Propedeutics in infectology
	Short description:
	Literature: required and optional
XV.	Title: Propedeutics in dermatovenerology
	Short description:
	Literature: required and optional
XVI.	Title: Propedeutics in neuropsychiatry
	Short description:
	Literature: required and optional

Name of the course	**Personalized Medicine and Biotechnology**	**Code**	

Type of study program *Cycle*	Integrated study program, Medicine				**Year of study**	III
Credits (ECTS) :	**0,5**	*Semester*	VI		Number of hours per semester (l+e+s)	30 (10+10+10)
Status of the course:	required	*Preconditions:*		*Comparative conditions:*		
Access to course:	Third year students			*Hours of instructions*:		According to schedule
Course teacher:	Head: Prof. Sandra Kostić, PhD, MSc in Biotechnology					
Consultations:	According to individual arrangement					
E-mail address and phone number:	sandra.kostic@mefst.hr					
Associate teachers	Prof. KatarinaVukojević, MD, PhD Filipa Markotić, MD, PhD, specialist of clinical pharmacology and toxicology					
Consultations:	According to individual arrangement					
E-mail address and phone number:	katarina.vukojevic@mef.sum.ba					
The aims of the course:	Understanding the concepts of precision medicine; tools for diagnosis and custom treatments tailored to each patient. The students will also learn the main ethical, social and legal issues involving the methods of biotechnology and integration of personalized medicine into the clinics.					
Learning outcomes (general and specific competences):	After the end of the course, students will be able to: - Describe and explain the types and the use of each type of biotechnology; specifically, medical biotechnology - Identify and describe the main laboratory methods used for personalized medicine - Name and explain the loss and gain of function experiments, such as CRISPR/CAS technology, knock in/out and knockdown technology, LoxP/Cre system, overexpression - Explain the basis of pharmacogenomics and pharmacogenetics - Understand the role of bioinformatics with the emerging big data bases, in order to process large-scale raw data, interpret and integrate this data and translate the results into the medical practice. - Name and describe the examples of personalized treatment for specific conditions - Describe the challenges from ethical, legal and social aspects of integration of personalized medicine into the existing healthcare system					
Course content (Syllabus):	Introduction to biotechnology, the main aspects of medical biotechnology					

	Molecular diagnostics as basis - Laboratory methods for personalized medicine (sequencing, DNA and RNA isolation and analysis, cDNA synthesis, qPCR, gene expression analysis, SNP analysis, flow cytometry…) How to make a model - Loss and gain of function experiments (CRISPR/CAS, knock in/out, LoxP/Cre system and overexpression) Embryonic models for drug development Bioinformatics – what to do with all the data? The basis of pharmacogenomics and pharmacogenetics Examples of personalized treatments for specific conditions (chronic diseases) The integration of personalized medicine into the existing healthcare system - the challenges from ethical, legal and social aspects			
Format of instruction (mark in bold)	**Lectures**	**Exercises**	**Seminars**	**Independent assignments**
	Consultations	Work with mentor	Field work	Other
Student responsibilities	Final exam Students will be evaluated based on: • Active participation in seminars and exercises. • Read teaching texts and develop their own critical thinking about the material and express those views. • work in small groups			
Screening student work (mark in bold)	**Class attendance**	**Class participations**	**Seminar essay**	**Practical training**
	Oral exam	**Written exam**	**Continous assesment**	Essay

Detailed evaluation within a *European system of points*

STUDENTS RESPONSIBILITIES	**HOURS**	**PROPORTIONS OF ECTS CREDITS**	**PROPORTIONS OF MARK**
Class attendance and participations		0,1	10%
Seminar essay		0,3	20%
Written exam		0,6	70%
Oral exam			
Practical work			

Required literature:	Jain KK (2015) Textbook of Personalized Medicine, 2nd Edition, Springer, New York

Optional literature:	Hays P (2017) Advancing Healthcare Through Personalized Medicine 1st Edition, CRC Press, Taylor & Francis Group Current review and original scientific articles
Additional information about the course	Methods of monitoring the quality of teaching: student survey Quality control analysis by the students and teachers Analysis of passing the exams The report of the Office for the quality of teaching

Annexes: calendar classes

The number of teaching units	TOPICS AND LITERATURE
I.	Title: Introduction to biotechnology The main aspects of medical biotechnology (2 h L and 2 h S)
	Short description: Definition and the types of biotechnology; application of medical biotechnology in science and clinics.
	Literature: required and optional
II.	Title: Molecular diagnostics as basis - Laboratory methods for personalized medicine (sequencing, DNA and RNA isolation and analysis, cDNA synthesis, qPCR, gene expression analysis, SNP analysis, flow cytometry…) How to make a model - Loss and gain of function experiments (CRISPR/CAS, knock in/out, LoxP/Cre system and overexpression), embryonic models for drug development (2 h L, 2 h S and 5 h P)
	Short description: Description of laboratory methods and tools used for personalized medicine – research, diagnostics and treatment
	Literature: required and optional
III.	Title: Bioinformatics – what to do with all the data? Examples of personalized treatments for specific conditions (chronic diseases) (2 h L and 2 h S)
	Short description: The use of bioinformatics for the storing, processing, analysing and interpreting data. The possibilities of personalized medicine treatments – examples.
	Literature: required and optional
IV.	Title: The basis of pharmacogenomics and pharmacogenetics Systematic reviews on pharmacogenomics and pharmacogenetics (Cohrane database) (2 h L, 2 h S and 2 h P)
	Short description: Defining the terms pharmacogenomics and pharmacogenetics and their role in personalized treatments
	Literature: required and optional
V.	Title: The integration of personalized medicine into the existing healthcare system - the challenges from ethical, legal and social aspects (2 h L and 2 h S, 3 h P)
	Short description: Explaining the challenges of integrating personalized medicine into existing healthcare from different points of view

	Literature: required and optional

Name of the course	**Social Medicine and Health Management**			**Code**	
Type of study program Cycle	Integrated study program, Medicine			**Year of study**	III
Credits (ECTS) :	**4**	*Semester*	VI	Number of hours per semester (l+e+s)	(70) 30+10+30
Status of the course:		*Preconditions:*		*Comparative conditions:*	
Access to course:	Third year students			*Hours of instructions*:	December, 3 weeks
Course teacher:	Prof.dr Boris Hrabač				
Consultations:	Through the entire duration of the program				
E-mail address and phone number:	bhrabac@yahoo.com; 061-203-628				
Associate teachers	Dr.sc.Ivan Bagarić				
Consultations:	Through the entire duration of the program				
E-mail address and phone number:					

The aims of the course:	The aims of the course are: • To acquaint the student with the basics of the healthcare organization, healthcare economics, the principles of resource allocation in healthcare, methods and mechanisms of payment and contract in healthcare, cost analysis, profit of each healing method and public health laws in the nature of health and disease etc. • To accentuate the importance of communication skills in managers job, as well as an employees, to describe motivation and differentiate motivation from other factors on productivity, to understand the motivation of healthcare professionals, recognize the cause of conflict in healthcare institutions, to learn different techniques regarding conflict solving, to understand the basic characteristics and the dimension of negotiation and to understand the concept of emotional inteligence.
Learning outcomes (general and specific competences):	After this course, students will know and be able to: • Control basic knowledge and understand the concept of the social healthcare with all its biological, demographic and epidemiological determinant sin the view of social factors and environmental characteristics, as well as the understanding of how the healthcare system functions with all its components intertwining • Understand the importance of motivational and other factors such as organization and resources on the productivity of the

	medical personnel with the aim of better compliance, quality and productivity • Understand the basic knowledge and possess the basic skill in the area of management in healthcare that are relevant for the lower and middle level in healthcare institutions • comprehend interpersonal skills, concept of emotional intelligence, stress handling, time management, dealing with conflict, teamwork skills, motivation and planning on microlevel			
Course content (Syllabus):	**„Social medicine" part:** concept of health and disease; determinants of health; social and medical diagnostics; the need and demand of healthcare; disease of social pathology; healthcare system and subsystems; the means of healthcare protection; the promotion of health and disease prevention; the network of healthcare institutions and healthcare personnel; economics and health; planning and programming in healthcare; management and healthcare; communication skills; ethical theories in prioritizing in healthcare **„Management in healthcare part":** the meaning and area of management in healthcare; healthcare system and the cycle of reform; interpersonal skills of a successful manager; communication in nursing; conflict management; managing human resources in healthcare; value of associates and employees; teamwork; successful meeting leadership; creative problem solving; motivating associates and employees; leadership in healthcare; the management of change.			
Format of instruction (mark in bold)	Lectures **30**	Exercises **10**	Seminars **30**	Independent assignments
	Consultations	Work with mentor	Field work	Other
	Reminders:			
Student responsibilities				
Screening student work (mark in bold)	Class attendance	Class participations	Seminar essay	Practical training
	Oral exam	Written exam	Continuous assessment	Essay

Detailed evaluation within a *European system of points*

STUDENTS RESPONSIBILITIES	**HOURS**	**PROPORTIONS OF ECTS CREDITS**	**PROPORTIONS OF MARK**
Class attendance and participations			
Seminar essay	15	0.5	20%

Written exam	70	2.5	60%
Oral exam	30	1	20%

Further clarification:
According to the regulations of the study, final grade is obtained:
A = 91-100% 5
B = 79 to 90% 4
C = 67 to 78% 3
D = 55 to 66% 2
F = 0 to 54% 1

Required literature:	Hrabač,B., i sur.: Socijalna medicina. University of Mostar textbook, ISBN 978-9958-690-72-3), 2010, 225 p. Hrabač,B., Lugonja,M., i Bošnjak,R.: Zdravstvena ekonomika. University library (ISBN 978-9958-16-007-3), Mostar, 2013, 250 p.
Optional literature:	Hrabač,B., Šunje,A., i sur.: Trening iz zdravstvenog menadžmenta. (Priručnik za menadžere) Cantonal institute for Public Health in Zenica, Center for Continuous Medical Education, 2007, 117 p.
Additional information about the course	

Annex: calendar

Teaching unit number	TOPICS AND LITERATURE
I.	Title: Definition and scope of social medicine and public health system. Definition of health and disease. Diagnostics in social medicine.
	Short description:
	Literature: Hrabač,B. et al. : Socijalna medicina. University of Mostar textbook, ISBN 978-9958-690-72-3), 2010, 225 p.
II.	Title: healthcare requirements and requests in a population. Health system and its components. Healthcare measures. Health promotion and disease prevention.
	Short description:
	Literature: Hrabač,B. et al. : Socijalna medicina. University of Mostar textbook, ISBN 978-9958-690-72-3), 2010, 225 p.
III.	Title: Network of health institutions and health professionals. Mreža zdravstvenih institucija i zdravstveni djelatnici. Composition and scope of work of a family medicine team. Team composition in hospitals.
	Short description:
	Literature: Hrabač,B. et al. : Socijalna medicina. University of Mostar textbook, ISBN 978-9958-690-72-3), 2010, 225 p.
IV.	Title: Social diseases as public health problems. Health economics. Analysis of costs and benefits. Cost effectiveness of screening programs. The role of "gate-keeper" in cost control. Questions of equality and righteousness in healthcare system.
	Short description:

	Literature: Hrabač,B. et al. : Socijalna medicina. University of Mostar textbook, ISBN 978-9958-690-72-3), 2010, 225 p.
V.	Title: Primary healthcare based on the family medicine practice concept. Registration of patients in family medicine practice – physician selection. Health statistics and IT system.
	Short description:
	Literature: Hrabač,B. et al. : Socijalna medicina. University of Mostar textbook, ISBN 978-9958-690-72-3), 2010, 225 p.
VI.	Title: Planning and programming in healthcare. Yearly work plan of a family medicine team. Implementation of health reforms – content, context, participants and process. Concept fo healthcare reform in Federation of Bosnia and Herzegovina.
	Short description:
	Literature: Hrabač,B. et al. : Socijalna medicina. University of Mostar textbook, ISBN 978-9958-690-72-3), 2010, 225 p.
VII.	Title: Medical ethics / deonthology. Ethical theories of importance for healthcare organization. European Declaration of patient's rights.
	Short description:
	Literature: Hrabač,B. et al. : Socijalna medicina. University of Mostar textbook, ISBN 978-9958-690-72-3), 2010, 225 p.
VIII.	Title: Introduction to management in healthcare system. Organization and management of health instititutions.
	Short description:
	Literature: Hrabač,B., Šunje,A. et al.: Trening iz zdravstvenog menadžmenta. (Priručnik za menadžere) Cantonal institute for Public Health in Zenica, Center for Continuous Medical Education, 2007, 117 p.
IX.	Title: Strategic management and management with strategic planning. SWOT analysis as a tool of strategic planning.
	Short description:
	Literature: Hrabač,B., Šunje,A. et al.: Trening iz zdravstvenog menadžmenta. (Priručnik za menadžere) Cantonal institute for Public Health in Zenica, Center for Continuous Medical Education, 2007, 117 p.
X.	Title: Organizing; basic type of business organization. Operative leadership and operative control.
	Short description:
	Literature: Hrabač,B., Šunje,A. et al.: Trening iz zdravstvenog menadžmenta. (Priručnik za menadžere) Cantonal institute for Public Health in Zenica, Center for Continuous Medical Education, 2007, 117 p.
XI.	Title: Human resource management.
	Short description:
	Literature: Hrabač,B., Šunje,A. et al.: Trening iz zdravstvenog menadžmenta. (Priručnik za menadžere) Cantonal institute for Public Health in Zenica, Center for Continuous Medical Education, 2007, 117 p.

XI.	Title: Management of healthcare quality; standards and accreditation in healthcare system.
	Short description:
	Literature: Hrabač,B., Šunje,A. et al.: Trening iz zdravstvenog menadžmenta. (Priručnik za menadžere) Cantonal institute for Public Health in Zenica, Center for Continuous Medical Education, 2007, 117 p.
XII.	Title: Communicational skills and management. Communication styles. Non-verbal communication. Communication directed to building relationship with a patient.
	Short description:
	Literature: Hrabač,B., Šunje,A. et al.: Trening iz zdravstvenog menadžmenta. (Priručnik za menadžere) Cantonal institute for Public Health in Zenica, Center for Continuous Medical Education, 2007, 117 p.
XIII.	Title: Concept of emotional intelligence. Assessment of emotional intelligence.
	Short description:
	Literature: Hrabač,B., Šunje,A. et al.: Trening iz zdravstvenog menadžmenta. (Priručnik za menadžere) Cantonal institute for Public Health in Zenica, Center for Continuous Medical Education, 2007, 117 p.
XIV.	Title: Managing stress and its meaning for management; causes and consequences of stress. Mobbing. Time management.
	Short description:
	Literature: Hrabač,B., Šunje,A. et al.: Trening iz zdravstvenog menadžmenta. (Priručnik za menadžere) Cantonal institute for Public Health in Zenica, Center for Continuous Medical Education, 2007, 117 p.
XV.	Title: Assertiveness training. Psychology of leadership and emotionally intelligent leadership.
	Short description:
	Literature: Hrabač,B., Šunje,A. et al.: Trening iz zdravstvenog menadžmenta. (Priručnik za menadžere) Cantonal institute for Public Health in Zenica, Center for Continuous Medical Education, 2007, 117 p.

4th Year of Study

Name of the course	**Radiology**			**Code**	
Type of study program Cycle	Integrated study program, Medicine			**Year of study**	IV
Credits (ECTS) :	**6**	*Semester*	VII	Number of hours per	100 (35+49+16)

				semester (l+e+s)	
Status of the course:	mandatory	*Preconditions:*	Passed all exams of the previous year	*Comparative conditions:*	None
Access to course:	Fourth year students			*Hours of instructions:*	According to schedule

Course teacher:	Asst.Prof. Miro Miljko, MD, PhD
Consultations:	As requested
E-mail address and phone number:	miro.miljko@gmail.com / +387 36 341963 Clinical Dept.of Radiology
Associate teachers	Assistant professor Josip Ćurić Maja Cvek-Babić, MSc Slobodan Kožul, MSc Marijana Karlović-Vidaković, MD Andrea Kordić, MD Ivana Soldo, MD Mladen Kolobarić, MD
Consultations:	As requested
E-mail address and phone number:	karlovicmarijana@yahoo.com; +387 36 341963 vnjuric5@gmail.com +387 36 341972 Dept of Nuclear Medicine
The aims of the course:	The aim of this course is to introduce medical students to basics of imaging anatomy, radiology equipment, biological effects of ionizing radiation, patient and staff radiation protection and radiology imaging techniques.
Learning outcomes (general and specific competences):	Upon completing this course and passing the exam students will: <u>General outcomes:</u> Applying the independent learning throughout the course by using critical and self-critical judgment of scientific truths. Remembering the possession of personal qualities (team work and personal involvement, curiosity, active listening and building positive relationship with team members). <u>Specific outcomes:</u> Understanding the basic of radiology physics, biological effects of radiation, radiation protection, contrast agents, normal and pathologic imaging findings of specific organ systems (central nervous system, eye, ear, nasopharynx, larynx, face and neck area, thoracic organs, breast, heart and large blood vessels, hepatobiliary system, pancreas, spleen, genitourinary and musculoskeletal system) and contemporary imaging techniques.

	Outcomes will be evaluated by continuous examinations, seminar tests, practical examinations, active studying through lectures, exercises, seminars and final oral and practical examination.			
Course content (Syllabus):	Radiology course consists of 50 hours of lectures divided in 12 units, 25 hours of seminars and 55 hours of practical work (excersises) divided in 11 units.			
Format of instruction (mark in bold)	**Lectures**	**Exercises**	**Seminars**	**Independent assignements**
	Consultations	Work with mentor	Field work	Other
	Remarks: Each unit starts off with lectures followed by seminars and exercises. At seminars students are given problem-based assignments to complete in small groups. Finally, knowledge is tested through quiz-tests with correct answers discussed afterwards.			
Student responsibilities	Final exam; oral presentations at seminars; quick tests; attending and actively participating in course contents. Students will be evaluated based on: - Active participation in seminars and exercises - Preparing materials for seminars - Oral examination (discussing imaging findings) - Written examination			
Screening student work (mark in bold)	**Class attendance**	**Class participations**	**Seminar essay**	**Practical training**
	Oral exam	**Written exam**	**Continous assesment**	**Essay**

Detailed evaluation within a *European system of points*

STUDENTS RESPONSIBILITIES	**HOURS**	**PROPORTIONS OF ECTS CREDITS**	**PROPORTIONS OF MARK**
Class attendance and participations	30	1	0%
Seminar essay	25	1	10%
Written exam	95	3	70%
Oral exam	30	1	20%

Further clarification:
Course examination is written, practical and oral.
Written examination (70% of the total grade).
Students with full attendance record (seminars and excersises) have the the right to take written examination. After the written examination student will have oral examination discussing imaging findings with the teacher.
Succsesfully completed written examination is a precondition for taking oral examniation.
Succesufully completed written examination is valid through current academic year.
Written examination criteria: total percentage of correct answers needed for succesfull completion of written examination is 55%.
Seminars (10% of the total grade).

After every seminar there is oral presentation and analyisis of specific patients and their radiologic findings. Seminars can have written component as directed by the medical school. Students completing the seminar get one point that add up to 10% affecting the total grade.
Practical examination (20% of the total grade).
Practical examination consists of 30 mixed radiologic imaging materials. Students should demonstrate knowledge in radiologic anatomy and radiologic pathology.
Final grade: Final grade composition =
Written examination (70%) + seminars (10%) + oral (practical) examination (20%).

According to the regulations of the study, final grade is obtained:
A = 91-100% 5
B = 79 to 90% 4
C = 67 to 78% 3
D = 55 to 66% 2
F = 0 to 54% 1

Required literature:	1. Hebrang A, Čustović-Klarić R, ur.: Radiologija. Medicinska naklada, Zagreb, 2007 2. Mašković J., Janković S. ur: ISBN: 978-953-7524-01-2, Split : Medicinski fakultet, 2008. 3. Janković S. ur: Seminari iz kliničke radiologije, ISBN: 953-98423-7-9, Split : Medicinski fakultet, 2005. 4. Janković S, Eterović D ur.: Fizikalne osnove i klinički aspekti medicinske dijagnostike. Medicinska naklada, Zagreb, 2002
Optional literature:	Internet based literature
Additional information about the course	Monitoring methods of teaching quality: - student questionnaire - quality analysis by students and teachers - exam results analysis - report of the office for teaching quality - external evaluation (visit of team for quality control)

Annexes: calendar classes

Number of teaching unit	**TOPICS AND LITERATURE**
I.	Title: Basic radiation physics in medical applications
	Short description: History of radiology, origin and characteristics of X-rays, compostion of X-ray tube etc.
	Literature: Required and optional literature.
II.	Title: Biological effects of ionizing radiation
	Short description: Radiobiology, radiation effects on cells, damage caused by ionizing radiation (risk evaluation)
	Literature: Required and optional literature.
III.	Title: Radiation measurment units and radiation dosimetry
	Short description: radiation doses in radiology, measuring radiation (dosimetry), dosimeters.
	Literature: Required and optional literature.
IV.	Title: Prevention and radiation protection

	Short description: sources of radiation, prevention and radiation protection, role of radiologist in radiation protection, protective measures for staff, modes of radiation protection
	Literature: Required and optional literature.
V.	Title: Radiography systems
	Short description: electronic amplyfier, X-ray films, cassettes, foils, computed radiography, flat detectors
	Literature: Required and optional literature.
VI.	Title: Factors affecting X-ray image
	Short description: X-ray films and film processing, computed radiography and processing (digitalization), physical aspects of image formation and characteristics of examined object, geometric aspects of image formation.
	Literature: Required and optional literature.
VII.	Title: Radiography equipment for special applications
	Short description: Radiographic, fluoroscopic and multi-purpose diagnostic and special X-ray machines (tomography, mammography etc.)
	Literature: Required and optional literature.
VIII.	Title: Contrast agents used in radiology
	Short decription: Contrast agents in conventional and digital radiology, ultrasonography, computerized tomography, magnetic resonance imaging
	Literature: Required and optional literature.
IX.	Title: Contemporary imaging techniques
	Short description: ultrasonography, digital radiography, computerized tomography, magnetic resonance imaging
	Literature: Required and optional literature.
X.	Title: Radiology of the central nervous system (CNS)
	Short description: Neuroradiology imaging methods, pathology of CNS, imaging diseases of the brain and the spine
	Literature: Required and optional literature.
XI.	Title: Radiology of the eye, ear, nasopharynx, larynx, paranasal sinuses and teeth.
	Short description : Methods of imagaing eye, ear, nasopharynx, larynx, paranasal sinuses and teeth.
	Literature: Required and optional literature..
XII.	Title: Osteoarticular system and trauma of osteoarticular system
	Short description: Methods of imaging osteoarticular system and trauma of osteoarticular system and and their pathology
	Literature: Required and optional literature.
XIII.	Title: Interventional radiology
	Short description: Radiologic imaging methods in interventional radiology.
	Literature: Required and optional literature.
XIV.	Title: Thoracic organs (lung and mediastinum, heart, large blood vessels and breast radiology)
	Short description: Radiologic imaging methods and pathology of thoracic organs
	Literature: Required and optional literature.

XV.	Title: Gastrointestinal and hepatobiliary system
	Short description: Imaging methods and pathology of gastrointestinal and hepatobiliary system
	Literature: Required and optional literature.
XVI.	Title: Genitourinary system and adreanal glands
	Short description: Imaging methods and pathology of genitourinary system and adreanal glands
	Literature: Required and optional literature.

Name of the course	**Nuclear Medicine**			**Code**	
Type of study program Cycle	Integrated study program, Medicine			**Year of study**	IV
Credits (ECTS) :	**1,5**	*Semester*	VII	Number of hours per semester (l+e+s)	30 (10+10+10)
Status of the course:	mandatory	*Preconditions:*	Passed all exams of the previous year	*Comparative conditions:*	None
Access to course:	Fourth year students			*Hours of instructions*:	According to schedule

Course teacher:	Professor, MD, PhD
Consultations:	As requested
E-mail address and phone number:	ante.punda@mefst.hr// 036 341 972 Clinical Dept.of Nuclear Medicine
Associate teachers	Ivan Jurić, MD, PhD Damir Rozić,MD Petar Pušić,MD Ivica Lovrić,ing.chem.
Consultations:	As requested
E-mail address and phone number:	vnjuric5@gmail.com 036 341 972 d_rozic@yahoo.com
The aims of the course:	The aim of this course is to introduce medical students to basic principles of nuclear medicine, instruments in nuclear medicine, basic principles of functional imaging and its significance in clinical practice, biological effects of ionizing radiation and protection of personnel and patients.
Learning outcomes (general and specific competences):	Upon completing this course and passing the exam students will: General outcomes: Applying the independent learning throughout the course by using critical and self-critical judgment of scientific truths.

<table>
<tr><td></td><td colspan="4">Remembering the possession of personal qualities (team work and personal involvement, curiosity, active listening and building positive relationship with team members).

<u>Specific outcomes:</u>
Remembering the basics of nuclear physics, biological effects of radiation and protection from radiation.
Interpretation of nuclear medicine findings.
Outcomes will be evaluated by continuous examinations, seminar tests, practical examinations, active studying through lectures, exercises, seminars and final oral and practical examination.</td></tr>
<tr><td>Course content (Syllabus):</td><td colspan="4">Nuclear medicine course consist of 10 hours of lectures, seminars and exercises.</td></tr>
<tr><td rowspan="3">Format of instruction (mark in bold)</td><td>Lectures</td><td>Exercises</td><td>Seminars</td><td>Independent assignements</td></tr>
<tr><td>Consultations</td><td>Work with mentor</td><td>Field work</td><td>Other</td></tr>
<tr><td colspan="4">Remarks: Each unit starts off with lectures followed by seminars and exercises. At seminars students are given problem-based assignments to complete in small groups. During exercises student actively participate in the work of “warm laboratory”, work with gamma camera and the computer in acquisition and processing.</td></tr>
<tr><td>Student responsibilities</td><td colspan="4">Final exam; oral presentations at seminars; quick tests; attending and actively participating in course contents.
Students will be evaluated based on:
- Active participation in seminars and exercises
- Preparing materials for seminars
- Oral examination (discussing imaging findings)
- Written examination</td></tr>
<tr><td rowspan="2">Screening student work (mark in bold)</td><td>Class attendance</td><td>Class participations</td><td>Seminar essay</td><td>Practical training</td></tr>
<tr><td>Oral exam</td><td>Written exam</td><td>Continous assesment</td><td>Essay</td></tr>
<tr><td colspan="5">Detailed evaluation within a European system of points</td></tr>
<tr><td>STUDENTS RESPONSIBILITIES</td><td>HOURS</td><td colspan="2">PROPORTIONS OF ECTS CREDITS</td><td>PROPORTIONS OF MARK</td></tr>
<tr><td>Class attendance and participations</td><td>12</td><td colspan="2">0.2</td><td>0%</td></tr>
<tr><td>Seminar essay</td><td>14</td><td colspan="2">0.2</td><td>10%</td></tr>
<tr><td>Written exam</td><td>30</td><td colspan="2">0.8</td><td>70%</td></tr>
<tr><td>Oral exam</td><td>14</td><td colspan="2">0.3</td><td>20%</td></tr>
<tr><td colspan="5">Further clarification:
Course examination is <u>written, practical and oral.</u>
<u>Written examination</u> (70% of the total grade).</td></tr>
</table>

Students with full attendance record (seminars and excersises) have the right to take written examination. After the written examination student will have oral examination discussing imaging findings with the teacher.
Succsesfully completed written examination is a precondition for taking oral examniation.
Succesufully completed written examination is valid through current academic year.
Written examination criteria: total percentage of correct answers needed for succesfull completion of written examination is 55%.
Seminars (10% of the total grade).
After every seminar there is oral presentation and analyisis of specific patients and their radiologic findings. Seminars can have written component as directed by the medical school. Students completing the seminar get one point that add up to 10% affecting the total grade.
Practical examination (20% of the total grade).
Practical examination consists of 30 mixed nuclear-medicine imaging materials. Students should demonstrate knowledge in recognizing characteristic entities in nuclear medicine.
Final grade: Final grade composition =
Written examination (70%) + seminars (10%) + oral (practical) examination (20%).

According to the regulations of the study, final grade is obtained:
A = 91-100% 5
B = 79 to 90% 4
C = 67 to 78% 3
D = 55 to 66% 2
F = 0 to 54% 1

Required literature:	Damir Dodig, Zvonko Kusić: ”Klinička nuklearna medicina”, Medicinska naklada, 2012.
Optional literature:	Internet based literature
Additional information about the course	Monitoring methods of teaching quality: - student questionnaire - quality analysis by students and teachers - exam results analysis - report of the office for teaching quality - external evaluation (visit of team for quality control)

Annexes: calendar classes

Number of teaching unit	**TOPICS AND LITERATURE**
I.	Title: Basics of Nuclear Physics: Structure of Atoms. Radioactive Disrupts. Core and Electron Coatings. Radiation and Substance Interaction. Radiation Sources, Semi-Radionuclides. Basic Principles of Protection
	Kratki opis: History of Nuclear medicine; Nuclear-medicine physics
	Literature: required and optional
II.	Title: Basics of Nuclear medicine
	Short description: Radiation detectors: ionization chambers, scintillation detectors, Well counters, scintillation probes and gamma cameras. Collaborators. Scintigraphy. Scintigraphic hot and scintigraphic cold lesions. Static and dynamic studies. Computerized Nuclear Medicine. Single-photon

	emission computerized tomography (SPECT); Positron Emission Tomography (PET); Fusion of images.
	Literature: required and optional
III.	Title: Diagnostic of thyroid gland diseases
	Short description: Radionuclide Thyroid Functional Screening, Thyroid Scintigraphy, In Vitro Testing, Ultrasound and Cytological Puncture. X-Ray, CT and MR in Thyroid Disease Diagnosis.
	Literature: required and optional
IV.	Title: hyperthyroidism and thyrotoxicosis
	Short description: Diffuse toxic struma, toxic adenoma and polynodal struma. Iod. Basedow. Thyrotoxicosis without hyperthyroidism. Thyroid inflammation: acute and subacute thyroiditis, silent thyroiditis, chronic autoimmune thyroiditis, fibrous thyroiditis. The action of amiodarone and thyroid interferon.
	Literature: required and optional
V.	Title: Hypothyroidism
	Short description: Primary, secondary and tertiary. Chronic thyroiditis and hypothyroidism. Post-ablative hypothyroidism. Latent hypothyroidism. Hypothyroidism in pregnancy.
	Literature: required and optional
VI.	Title: Struma
	Short description: Diffuse, nodoal and polynodal. Functional status. Relationship with other neck structures. Endemic struma
	Literature: required and optional
VII.	Title: Thyroid cancers
	Short description: Benign and malignant thyroid cancers. High, low or undifferentiated thyroid cancers. Mycrocarcinoma. Complete diagnostics of patient with thyroid cancer. Treatment of patient with thyroid cancer. Radio – iod ablation and therapy. Screening of patient with thyroid cancer.
	Literature: required and optional
VIII.	Title: Cardiology and pulmology
	Short description: Radionuclide angiocardiography and ventriculography. Scintigraphy of acute myocardial infarction. Testing of metabolism and myocardial inervation. Radionuclide flebography. Thrombus scintigraphy. Peripheral angioscintigraphy. Scintigraphy of blood vessels. Scintigraphy of the lungs.
	Literature: required and optional
IX.	Title: Neurology
	Short description: Radiopharmaceutics. Brain scintigraphy. Diagnosis of brain death. Radionuclide cysternography, hydrocephalus diagnosis, shunt passages and liquids. Diagnosis of neurodegenerative diseases. One-photon brain tomography.
	Literature: required and optional
X.	Title: Inflammation and tumor diagnostics
	Short description: Scintigraphy with Ga-67-citrat, J-131, J-131-MIBG. Scintigraphy with marked antibodies. Scintigraphy of receptors. Tumor

	markers. Scintigraphy of inflammatory diseases marked with leukocytes, agranulocyte antibodies, colloids, FDG.
	Literature: required and optional
XI.	Title: Radiation protection
	Short Description: The basics of dosimetry and the risk of ionizing radiation. Dosimetry units, absorbed dose calculation. Effective and equivalent dose. Basic Radiation Risk Data in Nuclear Medicine. Biological effects of ionizing radiation on mammalian organisms. Measurement of the whole body's radioactivity. Excessive Radiation Effects on the Organism: Acute Radiation Effects, Local Radiation Injury, Acute Radiation Syndrome, Late Effects of Radiation. Medical procedures in case of excessive irradiation or contamination. Work protection with sources of radiation. Legislation and Standards on Radiation Protection in Nuclear Medicine.
	Literature: required and optional
XII.	Title: Gastroenterology
	Short description: Hepatobiliary scintigraphy; Colloid scintigraphy of the liver and spleen; Liver hemangioma scintigraphy; Spleen scintigraphy; Scintigraphy of bleeding from the lower part of the gastrointestinal tract; Scintigraphy of Meckel's diverticulum; Other tests in gastroenterology. Hematology. Blood volume. Measurement of the erythrocytes' length of life; Kinetics of leukocytes and platelets; Pherokinetics; Schilling's absorption test of vitamin B12. Radionuclide therapy. Radioimunotherapy of B. cell non-Hodgkin's lymphoma. Radiophosphorus therapy; Therapeutic Application of J-131-Methydodobenzylguanidine; radioimmunotherapy; Intracavitary therapy; Palliative Therapy of the Bone System. Other tests. Scintigraphy of lacrimal pathways; Scintigraphy of salivary glands; Radionuclide lymphography.
	Literature: required and optional

Name of the course	**Internal Medicine**			**Code**	
Type of study prog ram Cycle	Integrated study program, Medicine			**Year of study**	IV
Credits (ECTS) :	**19.5**	*Semester*	VII	Number of hours per semester (l+e+s)	340 (65+195+80)
Status of the course:	mandatory	*Preconditions:*	Passed all exams of the 3rd year	*Comparative conditions:*	

Access to course:	Fourth year students	*Hours of instructions*:	According to schedule
Course teacher:	Professor Milenko Bevanda, MD, PhD		
Consultations:	As agreed		
E-mail address and phone number:	milenkobevanda@gmail.com		
Associate teachers	**Domestic faculty:** Professor Monika Tomić, MD, PhD Professor Milenko Bevanda, MD, PhD Professor Žarko Šantić, MD, PhD Professor Ivica Brizić, MD, PhD Professor Danijel Pravdić, MD, PhD Assistant professor Mirjana Vasilj, MD, PhD Assistant professor Slavica Ćorić, MD, PhD Assistant professor Ivanka Mikulić Emil Babić, MD, PhD Zrinko Prskalo, MD, PhD Kristina Galić, MD, PhD Darja Pavlović Rozić, MD, MSc Darko Markota, MD, MSc Mile Volarić, MD, MSc Maja Karin, MD, MSc Ivica Markota, MD, MSc Vedrana Gačić, MD, MSc Fila Raguž, MD Josip Petrović, MD Pero Marić, MD Sanja Selak, MD Danijela Ćuk, MD Branka Klarić, MD Boro Janjoš, MD Tanja Zovko, MD **Visiting faculty:** Professor Milan Kujundžić, MD, PhD Professor Davor Štimac, MD, PhD Professor Suzana Kukulj, MD, PhD Professor Igor Aurer, MD, PhD Professor Darko Kaštelan, MD, PhD Professor Branimir Anić, MD, PhD Professor Edvard Galić, MD, PhD Assistant professor Boris Starčević, MD, PhD		
Consultations:	As agreed		
E-mail address and phone			
The aims of the course:	The objectives of this course are to introduce students to: - prevention of internal diseases		

	- etiologic and pathogenetic processes leading to the occurrence of internal diseases - practical skills needed for clinical examination - laboratory and diagnostic procedures in internal medicine - diagnostic algorithms in internal medicine - planning and implementation of specific treatment of internal diseases and monitoring treatment outcomes.			
Learning outcomes (general and specific competences):	General outcomes: Applying the independent learning through the study in the way of critical and self-critical questioning of scientific truth. Applying the theoretical knowledge in practice. Remembering the possession of personal qualities (team work and personal contribution, interest, active listening, and building positive relationships with members of the group). Specific outcomes: Applying theoretical knowledge in internal medicine. Understanding the clinical presentations and syndromes in internal medicine. Applying practical skills, specific laboratory tests and diagnostics needed for clinical examination in internal medicine. Remembering the invasive and interventional therapeutic procedures in internal medicine. Understanding the modern diagnostic algorithms in internal medicine and analyzing the test results. Applying the specific internal-medicine therapy, analyzing the results and outcomes of treatment.			
Course content (Syllabus):	Course content: lectures, seminars and exercises. Every day classes begin with exercises during 3 hours with associate teachers. Before exercises students have nursing practice. The exercises are held at the Department of Internal Medicine and Department of Pulmonary Diseases. After the exercises students have seminars and lectures held at the Medical School.			
Format of instruction (mark in bold)	**Lectures**	**Exercises**	**Seminars**	**Independent assignments**
	Consultations	Work with mentor	Field work	Other
	Remarks:			
Student responsibilities	Students are required to attend all forms of course and presence will be check by roll call or students will have to sign the previously prepared forms.			
Screening student work	Class attendance	Class participations	**Seminar essay**	**Practical training**

(mark in bold)	**Oral exam**	**Written exam**	Continous assesment	Essay

Detailed evaluation within a *European system of points*

STUDENTS RESPONSIBILITIES	**HOURS**	**PROPORTIONS OF ECTS CREDITS**	**PROPORTIONS OF MARK**
Class attendance and participations	30	1	0%
Seminar essay	30	1	0%
Practical work	30	1	5%
Written exam – part I	90	3	15%
Written exam – part II	90	3	15%
Written exam – part III	90	3	15%
Oral exam	225	7.5	50%

Further clarification:
Students can approach to the exam during the Test deadlines.
Each student will take the exam in three ways:
1. Written Exam – 3 Mandatory Colloquia. These parts of the exam will be carried out after the classes in the field of Internal medicine, as it's provided in the Class calendar. The results of this part of the exam will have a significant impact on the final grade from the course of Internal Medicine.
2. The practical part of the exam - will be carried out according to the previous practical work during the classes. Practical part of the exam is carried out under the supervision of faculty teachers or assistants with a PhD or MSc degree or with the degree of subspecialization.
3. The oral part of the exam is carried out in front of the teachers of the Faculty of Medicine, University of Mostar. Results of the written and practical part of the exam will be considered in the final evaluation.
According to the regulations of the study, final grade is obtained:
A = 91-100% 5
B = 79 to 90% 4
C = 67 to 78% 3
D = 55 to 66% 2
F = 0 to 54% 1

Required literature:	1. B. Vrhovac et al.: Interna medicina, Medicinska naklada, Ljevak 2008. 2. Ž. Ivančević ur. Principi interne medicine: Harrison, 3. Hrvatsko izdanje, Placebo, Split, 2007. 3. Čustović F.: Anamneza i fizikalni pregled, Školska knjiga, Zagreb, 2000. 4. Šamija, Vrdoljak, Krajina: Klinička onkologija, Medicinska naklada, Zagreb, 2006.
Optional literature:	1. M. Bergovec: Praktična elektrokardiografija, Školska knjiga, Zagreb 1998. 2. Barić, Lj et al: Elektrokardiogram u praksi, Lek d. o. o., Zagreb 2003.

	4. D. Šimić et al: Bolesti sluznice, Medicinska naklada Zagreb, 2012.
Additional information about the course	Monitoring methods of teaching quality: - student questionnaire - quality analysis by students and teachers - exam results analysis - report of the office for teaching quality - external evaluation (visit of team for quality control)

Annexes: calendar classes

The number of teaching units	**TOPICS AND LITERATURE**
I.	Title: Diseases of the heart valve and congenital defects. Myocarditis and cardiomyopathy
	Short description: Symptoms and methods of examinations in cardiology
	Literature: required and optional
II.	Title: Treatment of Heart Failure. Ischemic heart disease, acute coronary syndrome, chronic coronary artery disease
	Short description: ECG Recording - Normal ECG, hypertrophy, preexcitation blocks. ECG in coronary heart disease, pericarditis. Clinical recognition and approach to a coronary patient. Emergency conditions in cardiology
	Literature: required and optional
III.	Title: Treatment of rhythm disturbances. Disease of peripheral arteries and veins
	Short description: ECG Tachycardia and Bradycard Rhythm Disorders
	Literature: required and optional
IV.	Title: Chronic obstructive pulmonary disease. Pneumonia. TBC of lungs.
	Short description: Examination methods in pulmology. Diseases of interstitium and diaphragm
	Literature: required and optional
V.	Title: Carcinoma of the bronchus and lung.
	Short description: Pulmonary hypertension, pulmonary embolism. Emergency conditions in pulmonology. Pleural and mediastinal diseases
	Literature: required and optional
VI.	Title: Diagnostic approach in gastroenterology; Ulcus. Gastroesophageal reflux. Inflammatory bowel disease.
	Short description: Abdominal pain. Malabsorption. Diarrhea. Opstipatio.
	Literature: required and optional
VII.	Title: Hemochromatosis. Wilson's disease. Primary billiary cirrhosis. Bilious lithiasis. Viral hepatitis. Liver cirrhosis. Liver transplantation
	Short description: Portal Hypertension. Ascites. Spontaneous bacterial peritonitis
	Literature: required and optional
VIII.	Title: Gastrointestinal bleeding. Functional intestinal diseases. Pancreatitis
	Short decription: Tumors of the esophagus, stomach, pancreas. Colorectal cancer. Liver and biliar tumor

	Literature: required and optional
IX.	Title: Diagnosis of Renal Diseases. Chronic renal insufficiency
	Short description: Acute Renal Insufficiency. Replacement therapy for renal insufficiency. Inflammation of the urinary system
	Literature: required and optional
X.	Title: Glomerular disease. Arterial hypertension. Tubulointerstitial diseases
	Short description: Secondary Glomerular Disease. Nephrolithiasis, kidney tumors.
	Literature: required and optional
XI.	Title: The hematopoetic system. Transfusiology.
	Short description: Diagnostic Methods in Hematology.
	Literature: required and optional
XII.	Title: Hemostasis disorders. Myeloic diseases. Lymphocytic diseases.
	Short description: Hemorrhagic Diathesis, Anticoagulant Treatment, Thrombophilia. Granulocytopenia, granulocytosis, eosinophilia, erythrocytosis, thrombocytosis. Increased lymph node, lymphocytosis. Anemia
	Literature: required and optional
XIII.	Title: Introduction to Oncology, etiology and Tumor Epidemiology. Cytostatic Therapy. Radiotherapy, hormone therapy
	Short description:
	Literature: required and optional
XIV.	Title: Multimodal approach to treatment of oncological patients, role of GP, basics of tumor diagnostics, TNM tumor classification. Tumor Biology, Cancerogenesis - tumor etiology
	Short description: Breast cancer, lung cancer. Colon cancer, gynecological tumors. Tumor markers, laboratory. Diagnostics in oncology, treatment of tumors and unwanted consequences of treatment, care for a dying patient with cancer
	Literature: required and optional
XV.	Title: Tumor Immunology, reaction of organism to the tumor, the tumor and the interrelationships of the organism. Combined approach in cancer treatment
	Short description: Urogenital tumors, prevention of oncological diseases, immunotherapy. Oncogene, cell division control, tumor growth kinetics. Metastasis process, tumor circulation, tumor metabolism
	Literature: required and optional
XVI.	Title: Introduction to Endocrinology. Thyroid diseases. Diseases of the adrenal cortex
	Short description: The Importance of Laboratory in Endocrinology.
	Literature: required and optional

Name of the course	**Neurology**	**Code**	

Type of study program *Cycle*	Integrated study program, Medicine			**Year of study**	IV
Credits (ECTS) :	**6**	*Semester*	VII	Number of hours per semester (l+e+s)	90 (24+43+23)
Status of the course:	mandatory	*Preconditions:*	Passed all exams of the 3rd year	*Comparative conditions:*	
Access to course:	Fourth year students			*Hours of instructions*:	According to schedule

Course teacher:	Prof. Helena Škobić, MD, PhD (Head) Prof. Anđelko Vrca, MD, PhD (Head deputy) Ass Prof. Inge Klupka Sarić, MD, PhD
Consultations:	according to appointment
E-mail address and phone number:	helena.skobic@tel.net.ba +387 (0)63 319 917
Associate teachers	Sandra Lakičević, MD, MSc Nataša Pejanović Škobić, MD, MSc Anita Ivanković, MD, MSc Davor Batinić, MD, MSc
Consultations:	As agreed
E-mail address and phone number:	-
The aims of the course:	To enable students to identify, early detect, treat and prevent different diseases of the central and nervous system To give the examples of specific signs and symptoms of neurological conditions and the basic neurological techniques and methods for analysis of the function of the nervous system

Learning outcomes (general and specific competences):	KNOWLEDGE: 1. Applying the classification, definition, description and distinction of neurological diseases. 2. Remembering the main symptoms and signs of disease of the nervous system and connect them to specific clinical features and syndromes. Remembering the localization of specific process and understanding the basic pathophysiological mechanisms in the development of the neurological disorders. 3. Understanding the neurological disorders in the diseases of other systems. 4. Evaluation of differential - diagnostic capabilities based on clinical signs and symptoms in neurological patients. 5. Applying the correct diagnostic procedures in certain states, syndromes and diseases of the nervous system and critical evaluation of the results of diagnostic tests. 6. Applying the knowledge of clinical and diagnostic procedures and evaluation of the correct diagnosis in different neurological conditions. 7. Understanding the basic principles of treatment, and applying the optimal therapeutic methods for neurological patient. 8. Evaluation of adequate prognosis of neurological conditions and outcomes of treatment and evaluate the ethical and psychosocial questions during care of neurological patients. 9. Remembering the methods of diagnosis and treatment of neurological diseases in accordance to the principles of "evidence-based medicine". SKILLS: 1. Applying the skill of the independent taking of neurological history and applying a neurological examination. Evaluation of a differential diagnosis. 2. Understanding the main symptoms of the nervous system disorders. Remembering the localization of disease processes. 3. Remembering the life threatening neurological symptoms in patients that are in need for urgent consultations of specialist. 4. Remembering the basic symptoms of neurological disorders - including disturbance of consciousness, disorders of cognitive function, speech, vision, hearing, balance, motor function, sensation and autonomic functions. 5. Applying the skills in discussing the clinical interpretation of the differential diagnosis in neurological conditions and the results of the findings of the diagnostic procedures. 6. Applying the clinical skills and appropriate number of different neurological diagnostic and therapeutic procedures under the supervision, in accordance with the Booklet of Clinical skills.

Course content (Syllabus):	Neurology syllabus - consists of lectures, seminars and exercises. Each student must perform different skills during exercises under the supervision of a mentor. Note: lessons from each unit begins with a lecture, followed by seminars and exercises. Knowledge is checked during the seminars and exercises			
Format of instruction (mark in bold)	**Lectures**	**Exercises**	**Seminars**	**Independent assignments**
	Consultations	**Work with mentor**	Field work	Other
	Remarks:			
Student responsibilities	To attend and participate in all lectures, seminars, exercises; To prepare for individual and group seminar essays To practice different skills under supervision of mentor			
Screening student work (mark in bold)	**Class attendance**	**Class participations**	**Seminar essay**	**Practical training**
	Oral exam	**Colloquium or Written exam**	**Continuous assessment**	**Essay**

Detailed evaluation within a *European system of points*

STUDENTS RESPONSIBILITIES	**HOURS**	**PROPORTIONS OF ECTS CREDITS**	**PROPORTIONS OF MARK**
Class attendance and participations	30	1	
Seminar essay	40	1	30%
Colloquium or Written exam	50	1.5	30%
Oral exam	80	2.5	40%

Further clarification:
According to the regulations of the study, final grade is obtained:
A = 91-100% 5
B = 79 to 90% 4
C = 67 to 78% 3
D = 55 to 66% 2
F = 0 to 54% 1

Required literature:	Brinar V. i suradnici : Neurologija. Medicinska naklada Zagreb,2009. Brinar V. Brzović Z. i N. Zurak . Neurološka propedeutika, Zrinski d.d. Čakovec 1999. Demarin V, Bašić Kess V. i suradnici. Glavobolja i druga bolna stanja Medicinska naklada,Zagreb ,2011. Vrca A.: Pregled neurološkog bolesnika
Optional literature:	Sinanović O. i suradnici: Neurologija. Tuzla.Ingograf: Udruženje neurologa 2012. Poeck K. Neurologija.Školska knjiga Zagreb,2000. Sinanović O.Trkanjec Z. i suradnici.Nemotorni simptomi nakon moždanog udara
Additional information about the course	Monitoring methods of teaching quality: - student questionnaire - quality analysis by students and teachers - exam results analysis - report of the office for teaching quality - external evaluation (visit of team for quality control)

Annexes: calendar classes

The number of teaching units	**TOPICS AND LITERATURE**
I.	Title: Organization of nervous system. Sensory system.
	Short description: Definition, examination, sensory deficit analysis
	Literature: obligatory and additional
II.	Title: Disturbances in the development of nervous system
	Short description: Definition and clinical picture of the commonest neurological disorders and their treatment
	Literature: obligatory and additional
III.	Title: Cognitive functions, memory, learning, remembering, speech. Consciousness and loss of consciousness.
	Short description: Definition, examination, deficit analysis
	Literature: obligatory and additional
IV.	Title: Pain physiology

	Short description: Definition, pathophysiology, examination, recognition of dysfunction and treatment
	Literature: obligatory and additional
V.	Title: Basic mechanisms and organization of central and peripheral nervous system
	Short description: development , function and possible major dysfunctions throughout some most important clinical pictures
	Literature: obligatory and additional
VI.	Title: Movement disorders
	Short description: Definition, pathogenesis, diagnosis, treatment
	Literature: obligatory and additional
VII.	Title: Signs and symptoms of disorders of central and peripheral nervous system
	Short description: Definition, examination, diagnosis and treatment
	Literature: obligatory and additional
VIII.	Title: Symptoms of dysfunction of cerebral lobes (frontal, temporal, parietal, occipital), decortication, decerebration, brain death
	Short description: Definition, clinical picture, examination, diagnosis
	Literature: obligatory and additional
IX.	Title: Intracranial pressure elevation. Hydrocephalus.
	Short description: Definition, pathophysiology, diagnosis, treatment
	Literature: obligatory and additional
X.	Title: Cerebellar syndrome. Syndrome of lesion in capsule interna, diencephalon, medulla oblongata.
	Short description: Definition, examination, diagnosis
	Literature: obligatory and additional
XI.	Title: Polyneuropathies. Peripheral paresis of facial nerve. Paraneoplastic syndrome.
	Short description : Definition. Pathophysiology, examination, diagnosis
	Literature: obligatory and additional

XII.	Title: Syndrome of spinal radices, plexus and peripheral nerves
	Short description: Definition, pathophysiology, examination, diagnosis
	Literature: obligatory and additional
XIII.	Title: Epilepsy, focal, generalised. Status epilepticus. Pharmacoresistant epilepsy. Surgical treatment of epilepsy. Preoperativ evaluation of patients with epilepsy. Vagus nerve stimulation.
	Short description: Definition, classification, pathophysiology, diagnosis, treatment
	Literature: obligatory and additional
XIV.	Title: Electroencephalography (EEG). Video EEG. Scalp electrodes. Intracranial recording with subdural and depth EEG electrodes.
	Short description: Preparation and performing an EEG recording
	Literature: obligatory and additional
XV.	Title: Diseases of neuromuscular junction. Myasthenia gravis.
	Short description: Definition, pathophysiology, diagnosis, treatment
	Literature: obligatory and additional
XVI.	Title: Neurodegenerative diseases. Cognitive impairment. Dementia.
	Short description: Definition, pathogenesis, diagnosis, treatment
	Literature: obligatory and additional
XVII.	Title: Myelosis funicularis, Motor neuron diseases. ALS. Short description: Definition, pathogenesis, diagnosis, treatment Literature: obligatory and additional
XVIII.	Title: Parkinson dysease. Short description: Definition, pathogenesis, diagnosis, treatment Literature: obligatory and additional
XIX.	Title: Hepatolenticular degeneration (Morbus Wilson). Neuralgia and pain syndrome. Neuropathic pain. Short description: Definition, pathogenesis, diagnosis, treatment Literature: obligatory and additional

XX.	Title: Cerebrovascular diseases. Anatomy of cerebrovascular system. TIA. Brain infarct. Intracerebral hemorrhage. SAH. Malformations of cerebrovascular system. Short description: Definition, pathogenesis, diagnosis, treatment Literature: obligatory and additional
XXI.	Title: Headache Short description: Definition, pathogenesis, diagnosis, treatment Literature: obligatory and additional
XXII.	Title: Infections of central nervous system. AIDS, neurobrucelosis, toxoplasmosis, serosal and bacterial brain infections, brain echinococosis, Jakobs Creutzfeldt disease. Tetanus infection. Cerebral lues. Short description: Definition, pathogenesis, diagnosis, treatment Literature: obligatory and additional
XXIII.	Title: Brain and spinal tumors. Neurogenic urinary bladder. Short description: Definition, pathogenesis, diagnosis, treatment Literature: obligatory and additional
XXIV.	Title: Traumatic injuries of central and peripheral nervous system. Craniocerebral trauma. Short description: Definition, pathogenesis, diagnosis, treatment Literature: obligatory and additional
XXV.	Title: Miopathies. Neuropathies. EMG-EMNG. Short description: Definition, pathogenesis, diagnosis, treatment Literature: obligatory and additional
XXVI.	Title: Loss of consciousness. Syncope. Non-epileptic seizures (psychogenic). Short description: Definition, pathogenesis, diagnosis, treatment Literature: obligatory and additional
XXVII.	Title: Diagnostics of cerebrospinal fluid in neurological conditions. Short description: Lumbar puncture, definition of normal and pathological findings. Literature: obligatory and additional

Course	**Anesthesiology and Intesive Medicine**	**Code**	

Study programme / cycle	Integrated study program, Medicine			**Year of study**	IV
ECTS credits:	**5**	*Semester*	VIII	Hours per semester (l+e+s)	60 (20+40+0)
Course Status:	**Mandatory**	*Course Prerequisites:*	Successful completion of Year 3	*Co-requisites:*	
Course Enrollment:	Fourth year students			*Course Term*:	According to Schedule

Course Leader/Lecturer:	Professor Slobodan Mihaljević, MD, PhD
Contact, consultation hours:	During the course: 8-9 a.m.
E-mail adress & telephone number:	smsmihaljevic@gmail.com 00385915024223
Teaching Assistant	Professor Alan Šustić, MD, PhD Professor Vesna Golubović, MD, PhD Zoran Karlović, MD, MSc Mara Šimić, MD Boris Matić, MD Anita Kosjerina, MD Edita Bjelanović, MD Dalibor Đurasović, MD Lucija Kočić, MD
Contact, consultation hours:	As agreed
E-mail adress & telephone number:	
Course objectives:	The objectives of this course are: To provide students with theoretical and practical knowledge about regional and general anesthesia, and resuscitation of critically ill patients.
Learning Outcomes (general and specific skills):	• Applying the skills of critical thinking in scientific attitude • Synthesis of knowledge of human physiology and pathophysiology, pharmacology, and cutting edge technology quickly and thoroughly to provide safe and compassionate care to all patients • Remembering and understanding the importance of ability to work with others (teamwork skills) but also personal characteristic of successful health care professional needed in treatment of all patients (empathy, motivation, communication, honesty, integrity and ethical awareness) • Applying valuable knowledge and skills gained in diagnosis and treatment of patients in need of emergent resuscitation (airway, breathing, and circulation) • Understanding how medical knowledge in addition to modern anesthetic and perioperative care can effect positive outcomes for patients undergoing surgery • Understanding the signs of sudden cardiac arrest • Applying the basic and advanced measures of cardiopulmonary resuscitation (CPR)

<table>
<tr><td></td><td colspan="4">

Applying the basic and advanced principles of airway management
Understanding the basic principles and techniques of general and regional anesthesia, including risks and benefits of various techniques
Remembering the specific agents used for induction and maintenance of anesthesia and analyzing their advantages and disadvantages (IV agents, inhalational agents, neuromuscular blocking agents)
Understanding the monitoring techniques both non-invasive (EKG, BP, Pulse Oximetry) and invasive
Understanding the management of critically ill patients (CPR, IV fluid resuscitation, and mechanical ventilation)
Evaluating and analyzing the management of issues unique to critically ill patients including different types of shock, techniques of invasive monitoring, hemodynamic and respiratory support, airway management, basic cardiovascular, pulmonary, renal physiology and pharmacology
Understanding etiology, pathophysiology, symptomatology and treatment of shock
Applying the practical skills on medical simulation mannequins (start IVs, intubation techniques, nasogastric tube insertion, urethral catheterization etc.)
Analyzing and understanding complications of regional and general anesthesia, and propose treatment options

Learning outcomes will be evaluated and contribute to student's final grade.
</td></tr>
<tr><td>Syllabus Content /Course Information (summary):</td><td colspan="4">The course consists of lectures, seminars and practicals during period of 4 weeks.</td></tr>
<tr><td rowspan="3">Different formats of Course</td><td>Lectures</td><td>Practicals</td><td>Seminars</td><td>Homework</td></tr>
<tr><td>Consultations</td><td>Mentorship</td><td>Field work</td><td>Other</td></tr>
<tr><td colspan="4">Remarks:</td></tr>
<tr><td>Student obligations</td><td colspan="4">Class Attendance, excused absences may not exceed 20% of the class meetings</td></tr>
<tr><td rowspan="3">Evaluation of the student</td><td>Attending Classes</td><td>In-Class Activity</td><td>Seminars</td><td>Practical assignments</td></tr>
<tr><td>Oral exam</td><td>Paper test</td><td>Continuous assessment</td><td>Essay</td></tr>
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Detailed evaluation overview *European Credit Transfer System*			
STUDENT OBLIGATIONS	**HOURS (ESTIMATION)**	**ECTS credits**	**Grading %**
In-Class Participation	30	1	
Seminars	30	1	20%
Colloquium (2) or Test paper	50	2	60%
Oral exam	30	1	20%
Additional explanations: Grades are based on the following percentages: A = 91-100% 5 B = 79 to 90% 4 C = 67 to 78% 3 D = 55 to 66% 2 F = 0 to 54% 1			
Compulsory literature:	1. Mihaljević S. et al. Kardiopulmonalna reanimacija.		
Supplementary literature:	1. Marko Jukić, Višnja Majerić-Kogler et al. 2010. Klinička anesteziologija. Medicinska naklada, Zagreb 2. European Resuscitation Council Guidelines for Resuscitation 2005. Resuscitation 2005.		
Additional Course Information:	Monitoring methods of teaching quality: - student questionnaire - quality analysis by students and teachers - exam results analysis - report of the office for teaching quality - external evaluation (visit of team for quality control)		

Annexes: calendar classes

Number of Lesson unit	Topics and Literature
I.	Topic: Basic Life Support
	Summary: Familiarization with the basics of resuscitation
	Literature: Kardiopulmonalna reanimacija Mihaljević S. et al.
II.	Topic: Algorithm of Advanced Life Support
	Summary: Familiarization with expanded resuscitation measures
	Literature: Kardiopulmonalna reanimacija Mihaljević S. et al.
III.	Topic: Pediatric Basic Life Support and Resuscitation of Newborn
	Summary: Familiarization with reanimation of children and newborns
	Literature: Kardiopulmonalna reanimacija Mihaljević S. et al.
IV.	Topic: Complications of CPR
	Summary: Familiarization with with reanimation complications
	Literature: Kardiopulmonalna reanimacija Mihaljević S. et al.
V.	Topic: Postresuscitation syndrome

	Summary: Familiarization with post-reanimation problems
	Literature: Kardiopulmonalna reanimacija Mihaljević S. et al.
VI.	Topic: Brain death
	Summary: Determining death
	Literature: Kardiopulmonalna reanimacija Mihaljević S. et al.
VII.	Topic: Anaphylaxis
	Summary: Recognition, diagnosis and treatment of anaphylaxis
	Literature: Kardiopulmonalna reanimacija Mihaljević S. et al.
VIII.	Topic: Resuscitation in pregnancy – Specific difficulties
	Summary: Recognition and resuscitation process in pregnant women
	Literature: Kardiopulmonalna reanimacija Mihaljević S. et al.
IX.	Topic: Anesthetic Monitoring
	Summary: Familiarization with the basics of patient monitoring in anesthesia
	Literature: Marko Jukić, Višnja Majerić-Kogler et al. 2010. Klinička anesteziologija.Medicinska naklada, Zagreb
X.	Topic: Establishing vascular access in anesthesiology
	Summary: The proceedings for the venous pathways using ultrasound
	Literature: Marko Jukić, Višnja Majerić-Kogler et al. 2010. Klinička anesteziologija.Medicinska naklada, Zagreb
XI.	Topic: Anesthesiology Machine
	Summary: Familiarization with the work of machines
	Literatura: Marko Jukić, Višnja Majerić-Kogler et al. 2010. Klinička anesteziologija.Medicinska naklada, Zagreb
XI.	Topic: Intravenous Anesthetics
	Summary: Familiarization with pharmacodynamics and pharmacokinetics of i.v. anesthetics
	Literature: Marko Jukić, Višnja Majerić-Kogler et al. 2010. Klinička anesteziologija.Medicinska naklada, Zagreb
XII.	Topic: Inhalational Anesthetics
	Summary: Familiarization with pharmacodynamics and pharmacokinetics of inhalation anesthetics
	Literature: Marko Jukić, Višnja Majerić-Kogler et al. 2010. Klinička anesteziologija.Medicinska naklada, Zagreb
XIII.	Topic: Other pharmacological agents in anesthesiology
	Summary: Familiarization with medicines used in anesthesiology
	Literature: Marko Jukić, Višnja Majerić-Kogler et al. 2010. Klinička anesteziologija.Medicinska naklada, Zagreb
XIV.	Topic: Shock
	Summary: Familiarization with the types of shock and therapy
	Literature: Marko Jukić, Višnja Majerić-Kogler et al. 2010. Klinička anesteziologija.Medicinska naklada, Zagreb
XV.	Topic: Regional Anesthesia
	Summary: Application of regional anesthesia
	Literature: Marko Jukić, Višnja Majerić-Kogler et al. 2010. Klinička anesteziologija.Medicinska naklada, Zagreb

Name of the course	**Psychiatry**			**Code**	
Type of study program Cycle	Integrated study program, Medicine			**Year of study**	4th
Credits (ECTS) :	**5,5**	*Semester*	VIII	Number of hours per semester (l+e+s)	100 (40+30+30)
Status of the course:	mandatory	*Preconditions:*	Passed all exams of the 3rd year	*Comparative conditions:*	
Access to course:	Fourth year students			*Hours of instructions*:	According to schedule

Course teacher:	Associate professor Miro Klarić, MD, PhD
Consultations:	Tuesdays and Thursdays 11,00 - 13,00h or as agreed during the course
E-mail address and phone number:	klaricmiro@gmail.com
Associate teachers	- Senior assistant BjankaVuksan-Ćusa, MD, PhD - Senior assistant Marko Martinac, MD, PhD - Senior assistant Ruža Milićević, MD, MSc - Senior assistant Božo Petrov, MD, MSc - Senior assistant Marko Pavlović, MD, MSc - Senior assistant Martina Čorić-Krešić, MD, MSc - Assistant Sanjin Lovrić, MD - Assistant Romana Babić, MD
Consultations:	As agreed during the exercises
E-mail address and phone number:	
The aims of the course:	The aims of the course are: - familiarization with determinants of mental health and mental health disorders - understanding mental illnesses within the biopsychosocial concept - recognition of clinical picture and differential diagnosis of mental disorders - familiarization with the organizational possibilities of mental health care - familiarization with the therapeutic possibilities of mild mental disorders - mastering the basic therapeutic algorithms
Learning outcomes (general and specific competences):	General outcomes: - Applying the independent learning through the study in the way of critical and self-critical questioning of scientific truth.

<table>
<tr><td></td><td colspan="4">- Remembering the possession of personal qualities including team work and personal contribution, interest, active listening, and building positive relationships with members of the group.
<u>Specific outcomes:</u>
- Understanding the basics of Psychiatry, mental diseases, mental disorders and mental retardation.
- Remembering the methods and principles of determining the psychological status as part of a comprehensive examination of the patient in primary health care.
- Synthesis of psychiatric diagnosis with differential diagnostic considerations.
- Applying the appropriate psychopharmacological and psychosocial methods of treatment.
- Remembering the psychiatric emergencies and applying the urgent therapy in outpatient conditions.
- Remembering the mental disorders requiring complexed examination or hospital treatment and referral to an appropriate psychiatric service/department/hospital institution.
- Applying the treatment of complexed and chronic mental disorders under the supervision of a physician psychiatrist.</td></tr>
<tr><td>Course content (Syllabus):</td><td colspan="4">The course Psychiatry consists of 10 units, two partial examinations during the exercises (a general psychopathology exam and a test in the form of a case report), two partial exams during the seminars, one in the form of an essay with two essay questions (at S15) and a multiple choice test consisted of 20 questions at the last seminar (S30), final written part of an exam as a multiple choice test consisted of 100 questions, practical and oral exam.
Each thematic unit includes: 1-5 hours of lectures, 1-5 hours of seminars and 1-5 hours of exercises.</td></tr>
<tr><td rowspan="3">Format of instruction (mark in bold)</td><td>Lectures</td><td>Exercises</td><td>Seminars</td><td>Independent assignments</td></tr>
<tr><td>Consultations</td><td>Work with mentor</td><td>Field work</td><td>Other</td></tr>
<tr><td colspan="4">Remarks: The teaching from each unit begins with lectures, followed by seminars and exercises.
During the seminars, students get problem-solving tasks in small groups. At the end of seminar, knowledge assessment is carried out through a quiz-test, and correct answers are analyzed with the clarification of problem assignments.
During the exercises students, independently or with the help of assistants take psychiatric history and psychiatric status, present it in small groups, discuss the diagnosis and differential diagnosis considerations and plan diagnostic procedures and therapeutic possibilities.</td></tr>
</table>

	Additionally, students are introduced with work and participate in the work of group for psycho-social therapies at the Department for Psychiatry and Mental Health Center at Health Care Center Mostar.
Student responsibilities	Attendance and active participation in all forms of teaching. Preparation of teaching units for seminars. Active participation in seminars and exercises. Reading the teaching texts and developing own critical thinking about the teaching material, and expression of those opinions. Final exam; Attendance and active participation in all teaching units, passed all preliminary exams, quizzes at seminars, final written exam, practical and oral exam.

Screening student work (mark in bold)	**Class attendance**	**Class participations**	**Seminar essay**	**Practical training**
	Oral exam	**Written exam**	**Continuous assessment**	**Essay**

Detailed evaluation within a *European system of points*

STUDENTS RESPONSIBILITIES	**HOURS**	**PROPORTIONS OF ECTS CREDITS**	**PROPORTIONS OF MARK**
Class attendance and participations	15	0,5	0
Seminar essay	15	0,5	11%
Preliminary exam	30	1	22%
Written exam	45	1,5	33%
Practical exam	15	0,5	11%
Oral exam	40	1,5	23%

Further clarification:
The student's work is assessed and evaluated during the course and at the final exam. During the course, seminar works and four preliminary examinations (colloquia) will be organized: a general psychopathology partial exam, a test in the form of a case report and two assessments during the seminars.
Seminar essay includes written work and presentation. Evaluation of the seminar work will be carried out according to the regulations of the study, ie the written work (70% of the grade) and the presentation (30% of the grade) will be evaluated.
Written part:

- The essay is comprehensive, grammar and spelling are correct – excellent (5)
- The essay meets the form and content but minor grammar and spelling mistakes are noted – very good (4)
- The essay meets the form and content but major grammar and spelling mistakes are noted - good (3)
- The essay meets the formal criteria, but major content deficiencies are noted – sufficient (2)
- The essay is not written, it is plagiarism or doesn't meet the formal criteria - insufficient (1).

Presentation:

- The essay is excellently presented, almost without linguistic errors, excellent co-operation and relationship with listeners - excellent (5)
- The essay is very well presented, with minor grammatical or pronunciation errors, very good relationship with listeners – very good (4)
- The essay is well presented, occasional errors in pronunciation or grammar - good (3)
- The essay is presented with quite often mistakes in pronunciation and grammar - sufficient (2)
- The essay is not presented or is presented with a lot of errors in grammar, pronunciation, slurred speech – insufficient (1).

This partial assessment lasts for 45 minutes and is evaluated with a maximum of 11 points.
- excellent (5) - 11 points
- very good (4) - 8 points
- good (3) - 5 points
- sufficient (2) - 2 points
- insufficient (1) - 0 points

Two partial examinations (general psychopathology and a test in the form of a case report) are carried out during the exercises. Exam on general psychopathology will be organized at Exercise 14 and is in a form of multiple choice test (with 5 answers) consisted of 30 questions. This assessment lasts for 45 minutes and is evaluated according to the regulations of the study (91-100% correct answers - excellent (5), 79-90% very good (4), 67-78% good (3), 55 -66% sufficient (2), 0 to 54% insufficient (1)) with a maximum of 6 points:
- excellent (5) - 6 points
- very good (4) - 4.5 points
- good (3) -3 points
- sufficient (2) - 1.5 points
- insufficient (1) - 0 points.

The test in the form of a case report is carried out in the penultimate exercise (E27, E28) and consists of a case report in a way patient presents him/herself at the first visit to the doctor. Based on the data in the test, student considers differential diagnostic possibilities and clinical procedures that need to be taken (preliminary diagnosis, diagnostic guidelines, differential diagnosis, therapeutic guidelines and algorithms). This partial assessment lasts for 45 minutes and is evaluated with a maximum of 6 points.
- excellent (5) - 6 points
- very good (4) - 4.5 points
- good (3) -3 points
- sufficient (2) - 1.5 points
- insufficient (1) - 0 points.

Two partial exams will be held at seminars, one in the form of an essay (S15) and one in the form of a 30-question test with 4 and 5 answers. The essay is consisted of 2 seminar questions with the maximum duration of 45 minutes. It is evaluated with a maximum of 5 points:
- excellent (5) - 5 points
- very good (4) - 4 points
- good (3) -3 points
- sufficient (2) - 1 point
- insufficient (1) - 0 points.

Knowledge assessment in a form of test will be carried out during the last seminar (S30) and evaluated according to the regulations of the study (91-100% correct answers - excellent (5), 79-90% very good (4), 67- 78% good (3), 55-66% sufficient (2), 0 to 54% insufficient (1)). This partial exam lasts for 45 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) - 1 point
- insufficient (1) - 0 points.

The final exam consists of a written, practical and oral part. All the students who attended classes regularly and who passed all partial exams (a general psychopathology exam, a test in the form of a case report and two exams at the seminars) have a right to approach to the final exam.

The written part of the final exam will be carried out in the form of a test consisted of 100 questions with 4 or 5 answers, and will last for 90 minutes. The questions entire teaching materials in Psychiatry. The test will be evaluated according to the regulations of the study, ie 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). Written part of the exam is evaluated with a maximum of 44 points.
- excellent (5) - 33 points
- very good (4) - 25 points
- good (3) -17 points
- sufficient (2) -9 points
- insufficient (1) - 0 points.

The practical part of the exam consists of two parts: taking the history and the examination of the patient, and the oral presentation. The total duration of the practical part of the exam is 60 minutes and is evaluated with a maximum of 11 points.
- excellent (5) - 11 points
- very good (4) - 8 points
- good (3) - 5 points
- sufficient (2) - 2 points
- insufficient (1) - 0 points.

The oral part of the exam is evaluated with a maximum of 23 points. Students draw a card with three questions from the entire teaching material of Psychiatry.
- excellent (5) - 23 points
- very good (4) - 17 points
- good (3) -11bodova
- sufficient (2) - 5 points
- insufficient (1) - 0 points.

Final grade:

The final grade is the sum of:

Seminar essay mark (11%) + continuous assessment during the course – four partial exams (22%) + written part of the exam (33%) + practical part of the exam (11%) + oral part of the exam (23%).

Required literature:	1. Frančišković T.& Moro Lj. et al. Psihijatrija. Medicinska Naklada Zagreb, 2011.

	2. Kaplan HI &Sadock BJ. Priručnik kliničke psihijatrije. «Naklada Slap», Jastrebarsko, 1999. 3. Kaplan HI &Sadock BJ. Priručnik za uporabu lijekova u psihijatriji. «Naklada Slap», Jastrebarsko, 1998.
Optional literature:	1. Klarić M. &Babić D.Gerontopsihijatrija. In: Šantić Ž. et al. Medicinska gerontologija u kliničkoj praksi. Sveučilište u Mostaru, Medicinski fakultet: Grafotisak Grude; 2015;37-561. 2. Klarić M. & Mandić V. Serotonin i depresija kod žena. In: Jakovljević M. et al. Serotonin i depresija - mitovi i činjenice. Zagreb:Pro Mente; 2013;168-177. 3. Klarić M. &Lovrić S. Odnos između psihotraume i psihoze - uloga dopamina. In: Jakovljević M. et al. Dopamin u zdravlju i bolesti – mitovi i činjenice. Zagreb:Pro Mente; 2015;248-261. 4. Jakovljević M. Shizofrenija u teoriji i praksi. Pro Mente Zagreb. 2011. 5. Jakovljević M. et al. Nove ideje i koncepti u suvremenoj psihijatriji. Pro Mente d.o.o. Zagreb; 2008. 6. Jakovljević M. et al. Ličnost, tjeskoba i depresija u suvremenoj medicini. Pro Mente. Zagreb. 2006. 7. Jakovljević M: Depresivni poremećaji – Od ranog prepoznavanja do uspješnog liječenja. Pro Mente, Zagreb, 2003. 8. Frančišković T., Grković J., Kaštelan A.: Radna bilježnica iz psihijatrije za studente medicine. Medicinska naklada, Zagreb, 2014 9. Begić D.: Psihopatologija, Medicinska naklada, Zagreb, 2014. 10. HotujacLj., Jakovljević M.: Psihijatrija, Medicinska naklada, Zagreb, 2006.
Additional information about the course	Monitoring methods of teaching quality: - student questionnaire - quality analysis by students and teachers - exam results analysis - report of the office for teaching quality - self-evaluation, external evaluation (visit of team for quality control)

Annexes: calendar classes

The number of teaching units	TOPICS AND LITERATURE
I.	Title: **Psychiatry in modern medicine**
	Short description: Why study psychiatry? A brief history of psychiatry. Where does modern psychiatry go? A small psychiatric glossary. Modern nosology and classification of mental disorders. Relationship between physician and patient.
	Literature: required and optional
II.	Title: **General psychopathology**
	Short description: Mental health and mental disorders. Healthy and Pathological Personality. Normal and impaired psychosocial development.

	Models of mental disorders. Mental function disorders and signs and symptoms of the disease. An overview of the most important psychopathological syndromes. Psychiatric interview. Examination of Psychiatric Status.
	Literature: required and optional
III.	Title: **The basic paradigm of etiologic concepts in psychiatry**
	Short description: Biological Psychiatry: The Basics of Functional Neuroanatomy and Psychophysiology. The basics of psychoneurobiochemistry. Basics of psychiatric genetics. Basics of psychoneuroendocrinology. Brain Imaging. Psychodynamic paradigm - Psychodynamics of personality. Phases of psycho-sexual development of personality. Psychological defense mechanisms. The paradigm of learning. Cognitive and behavioral paradigm. Diathesis-stress paradigm.
	Literature: required and optional
IV.	Title: **Social Psychiatry**
	Short description: The Basics of Social Pathology. Cultural Specificity of Mental Disorders. Social therapeutic methods. The role of a social worker. Psychiatry in the community. Psychiatry and spirituality.
	Literature: required and optional
V.	Title: **Clinical Psychiatry**
	Short description: Organic and Symptomatic Mental Disorders (F00-F09). Mental disorders and behavioral disorders due to the use of psychoactive substances (F10-F19). Schizophrenia, schizotypal and other delusional disorders (F20-F29). Affective Disorders and Mood Disorders (F30-F39). Neurotic Disorders. Mental disorders specifically associated with stress. Crisis situations. Adjustment disorders. (F40-F48). Psychosomatic medicine and collaborating (liaison) psychiatry. Behavioral syndromes associated with physiological disorders and physical factors (F50-F55). The basics of medical sexology. Personality Disorders and Adult Behavioral Disorders (F60-F69). Mental Retardation (F70-F79). The Basics of Pediatric and Adolescent Psychiatry. Psychological Development Disorders (F80-F87). Disorders of behavior and feelings that occur in childhood and adolescence (F90-F98). The Basics of Gerontopsychiatry. Specific psychiatric disorders in women. Emergency psychiatric conditions and their disposal. Diagnostic procedures in psychiatry.
	Literature: required and optional
VI.	Title: **Methods of treatment in psychiatry**
	Short description: Biological methods of treatment (psychopharmacological therapy, sleep deprivation, light therapy, hormonal therapy). Psychotherapeutic treatment methods. Sociotherapy.
	Literature: required and optional
VII.	Title: **The basics of forensic psychiatry**
	Short description: Ethical and Legal Aspects of Psychiatry. Forced hospitalization and treatment. Criminal responsibility. Working ability.
	Literature: required and optional
VIII.	Title: **Ethics in psychiatry**

	Short description: Human rights of mentally ill persons. Clinical trials on mentally ill persons. The issue of medical secret.
	Literature: required and optional
IX.	Title: Organization of psychiatric department
	Short description: Contemporary concepts. Primary Health Care Physician in the Protection of Mental Health.
	Literature: required and optional
X.	Title: **Scientific Research in Psychiatry**
	Short description: Double-blind controlled research. Naturalistic studies. Case report. Evidence-based medicine in psychiatry.
	Literature: required and optional

Name of the course	**Infectology and Clinical Microbiology**			**Code**	
Type of study program Cycle	Integrated study program, Medicine			**Year of study**	IV.
Credits (ECTS) :	**8**	*Semester*	VIII.	Number of hours per semester (l+s+e)	120 (20+35+65)
Status of the course:	Mandatory	*Preconditions:*	None	*Comparative conditions:*	
Access to course:	Fourth year students			*Hours of instructions*:	According to schedule
Course teacher:	Assistant Professor Jadranka Nikolić, MD, PhD				
Consultations:	Per agreement				
E-mail address and phone number:	jadranka.d.nikolic@gmail.com 00387 63 790 033				
Associate teachers	Professor Ilija Kuzman, MD, PhD Professor Maja Abram, MD, PhD Assistant Professor Ivo Curić, MD, PhD Assistant Professor Svjetlana Grgić, MD, PhD Helien Bebek Ivanković, MD, MSc Siniša Skočibušić, MD, MSc Associate Professor Jurica Arapović, MD, PhD				
Consultations:	Per agreement				
E-mail address and phone number:	jadranka.d.nikolic@gmail.com 00387 63 790 033				
The aims of the course:	The principal aims of this course: to inform and teach the students about the importance and the extension, as well as the epidemiological, diagnostic and clinical features of the most important infectious diseases. The focus is on acquiring the knowledge and skills needed to recognize clinical symptoms, differential diagnosis, critical evaluation of laboratory findings and rational treatment. The focus will also be on preventive measures, as well as the protection of medical personnel from infections.				

<table>
<tr><td></td><td colspan="4"></td></tr>
<tr><td>Learning outcomes (general and specific competences):</td><td colspan="4">After attending and passing this course, students will know / be able to:
General competences:
By knowing the pathogenesis, recognize clinical symptoms, diagnose the infection and determine the appropriate treatment, respectively in differential diagnostic conclusion connect the acquired knowledge and skills.
Specific competences:
The student acquires the knowledge and skills associated with previously acquired clinical knowledge in detecting and interpreting clinical symptoms and signs of infectious diseases, critically evaluating laboratory methods of rational diagnosis of disease pathogens. By applying acquired knowledge, students will be able to select samples and methods for microbiological evaluation, interpret the antibiogram and determine the appropriate treatment. Students will be able to apply their knowledge and skills in diagnosing and treating infections of all organic systems in adults and children and in immunocompromised patients.</td></tr>
<tr><td>Course content (Syllabus):</td><td colspan="4">This class involves the study of infectious diseases with the attached subsection of Clinical microbiology. The class is performed in several separate thematic units including lectures, seminars and exercises in small groups. In exercises, students with help from the assistants, will thoroughly examine the patients. Workshops (3) will be organized, respectively patient presentations with interactive participation of students and teachers and a round table at the end of the tuition. Students will be evaluated by a written examination from General infectology and a colloquium from Clinical microbiology.</td></tr>
<tr><td rowspan="3">Format of instruction (mark in bold)</td><td>Lectures</td><td>Exercises</td><td>Seminars</td><td>Independent assignments</td></tr>
<tr><td>Consultations</td><td>Work with mentor</td><td>Field work</td><td>Other</td></tr>
<tr><td colspan="4">Remarks: patient presentation (interactive lessons)</td></tr>
<tr><td>Student responsibilities</td><td colspan="4">- Attendance and active participation in all forms of class - lectures, seminars, exercises, workshops, round table
- In exercises: history and clinical overview of patients with planning of laboratory evaluation and therapy
- Submission of written colloquium from General infectology and Clinical microbiology
- Final exam consisting of a practical and oral part</td></tr>
<tr><td>Screening student work</td><td>Class attendance</td><td>Class participations</td><td>Seminar essay</td><td>Practical training</td></tr>
</table>

(mark in bold)	**Oral exam**	Written exam	**Continous assesment**	Essay

Detailed evaluation within a *European system of points*

STUDENTS RESPONSIBILITIES	**HOURS**	**PROPORTIONS OF ECTS CREDITS**	**PROPORTIONS OF MARK**
Class attendance and participations	45	1.5	0%
Seminar essay	50	2	0%
Written exam	20	1	10%
Oral exam	100	3,5	90%

Further clarifications:

Written colloquium from General Infectology and Clinical Microbiology are mandatory and they are condition for applying for an exam. Colloquium from Clinical microbiology is qualifying and is not expressed in numerical grades. The written colloquium from General infectology has 30 questions. For the excellent evaluation (5) 90%, for very good (4) 80% for good (3) 70% and for enough (2) 60% questions should be solved correctly.
Grade from General Infectology is only generally accepted by the examiner on the final exam and does not contribute to student overall grade in the practical and oral exam.
The exam, after attending the classes and the passed colloquium, consists of a practical (examination of the patients with interpretation) and the oral part. At the oral part of exam, students need to answer five questions (one from each area): 1. General Infectology, 2. Bacterial Diseases, 3. Zoonosis, 4. Viral Diseases, 5. Other Chapters. Students choose questions by selecting numbers. Evaluation is based on the interpretation of the patient's examination and the answers given to the oral questions.

Required literature:	1. Begovac J, Božinović D, Lisić M, Baršić B, Schoenwald S, ed. Infectology. Zagreb: Profile, 2006. 2. Kalenić S, ed. Medical Microbiology. Zagreb: Medical Publishing, 2013.
Optional literature:	1. Kuzman I. Infectology - for high medical schools. Zagreb: Medical Publishing, 2012. 2. Kuzman I. Pneumonia - Causes, Diagnosis, Treatment. Zagreb: Medical Publishing, 1999. 3. Krkić-Dautović S. Infectology. Sarajevo-Tuzla: Medical Faculty Sarajevo, 2011.
Additional information about the course	**Quality assurance method:** Student Survey Analysis of the quality of teaching by students and teachers Passage analysis at exams Report of the Office for Quality of Teaching Out-of-institutional evaluation (Visit Quality Control Teams)

Annexes: calendar classes

The number of teaching units	**TOPICS AND LITERATURE**
I.	Title: Introduction and General infectology
	Short description: Definition and positioning of infectology; Basic concepts of infection, route of transmission, symptoms of disease, diagnosis, treatment and prevention
	Literature: Obligatory and supplementary
II.	Title: Antimicrobial treatment
	Short description: Overview of antibiotic groups, clinical guidelines for use
	Literature: Obligatory and supplementary
III.	Title: Symptomatic Treatment
	Short Description: Basics of symptomatic treatment - antipyretics, liquid and electrolyte compensation, other symptomatic measures and procedures
	Literature: Obligatory and supplementary
IV.	Title: Streptococcal and staphylococcal infections
	Short description: Most common streptococcal and staphylococcal diseases- clinical presentation, diagnostic, treatment
	Literature: Obligatory and supplementary
V.	Title: Acute respiratory infections
	Short Description: Size of the problem, clinical syndromes, clinical and laboratory diagnosis, treatment
	Literature: Obligatory and supplementary
VI.	Title: Infectious bowel diseases
	Short Description: Epidemiology, causes, clinical presentation of disease, diagnosis, treatment and prevention
	Literature: Obligatory and supplementary
VII.	Title: Infectious diseases of CNS
	Short Description: Serous and purulent meningitis, causes, epidemiology, clinical presentation, treatment
	Literature: Obligatory and supplementary
VIII.	Title: Angina
	Short Description: Angina syndrome, causes, clinical manifestations, differential diagnosis, treatment
	Literature: Obligatory and supplementary
IX.	Title: Rash diseases in Infectology
	Short Description: Child rash diseases, differential diagnostic of rash accompanied with temperature
	Literature: Obligatory and supplementary
X.	Title: Enterovirus infections
	Short description: Causes, epidemiology, most common clinical manifestations
	Literature: Obligatory and supplementary
XI.	Title: Herpesvirus infections

	Short description: Characteristic pathogenesis and clinic manifestations of disease caused by certain herpesviruses, diagnosis and treatment
	Literature: Obligatory and supplementary
XI.	Title: Diseases caused by bacterial toxins
	Short Description: Pathogenesis, most important diseases - tetanus, botulism, diagnosis, treatment
	Literature: Obligatory and supplementary
XII.	Title: Most common parasitic diseases
	Short Description: Most important diseases with clinical presentation and treatment - Malaria, leishmaniosis
	Literature: Obligatory and supplementary
XIII.	Title: Bacterial and atypical pneumonia
	Short Description: Definition and clinical classification, causes, pathogenesis, clinical presentation, treatment
	Literature: Obligatory and supplementary
XIV.	Title: HIV / AIDS
	Short Description: HIV - Pathogenesis, immunology, clinical stage of HIV, opportunistic infections, diagnosis, treatment and prevention
	Literature: Obligatory and supplementary
XV.	Title: Viral hepatitis
	Short Description: Causes, epidemiology, clinical presentation, laboratory diagnostics - hepatitis markers, treatment and prevention
	Literature: Obligatory and supplementary
XVI.	Title: Bacteremia and sepsis
	Short Description: Pathogenesis, causes, clinical presentation, complications, treatment
	Literature: Obligatory and supplementary
XVII.	Title: Zoonosis, including HVBS
	Short description: The most important zoonosis - leptospirosis, brucellosis, HVBS; epidemiology, diagnosis, treatment, prevention
	Literature: Obligatory and supplementary
XVIII.	Title: Hospital infections
	Short description: Importance once and now, types of hospital infections - urogenital, hospital pneumonia, sepsis, surgical wound infections; cause, diagnostics, prevention
	Literature: Obligatory and supplementary
XIX.	Title: Snake bites and bites from other poisonous animals
	Short description: Snake bite - pathogenesis, clinical manifestation, prevention and treatment. Lactrodectisam, bites of the other poisonous animals
	Literature: Obligatory and supplementary
XX.	Title: Microbiological diagnosis of bacterial diseases
	Short Description: Most important bacterial causes, morphological characteristics, clinical manifestation, laboratory diagnostics with practicum
	Literature: Obligatory and supplementary
XXI.	Title: Microbiological diagnosis of viral diseases

	Short description: Most important viral agents, morphological characteristics, clinical presentation, laboratory diagnostic methods with practicum
	Literature: Obligatory and supplementary
XXII.	Title: The most important cause of parasitic diseases
	Short Description: Most important causes, morphological characteristics, clinical manifestation, laboratory diagnostic methods with practicum
	Literature: Obligatory and supplementary

Name of the course	**Dermatovenerology**			**Code**	
Type of study program Cycle	Integrated study program, Medicine			Year of study	4th
Credits (ECTS):	**5,5**	*Semester*	VIII	Number of hours per semester (l+e+s)	70 (30+25+15)
Status of the course:	mandatory	Preconditions:	Succesfully passed 3rd year exames	Comparative conditions:	
Access to course:	Fourth year medical students			Hours of instructions:	According to schedule

Course teacher:	Associate Professor Dubravka Šimić, MD,PhD
Consultations:	As agreed
E-mail address and phone number:	simicdubravka@gmail.com
Associate teachers	Professor Mirna Šitum, MD, PhD Professor Branka Marinović, MD, PhD Assistant professor Jasna Zeljko Penavić, MD, PhD Ivana Topić, MD, PhD Ana Marija Sulić, MD Branka Sivrić, MD
Consultations:	As agreed
E-mail address and phone number:	
The aims of the course:	The aim of dermatovenerology course is to introduce students with the role, structure and function of the skin and visible mucous membranes. Applying the dermatological clinical examination, as well as other methods of dermatology diagnostics. Familiarization with local and systemic as well as physical treatments in dermatovenerology. Familiarization with a detailed examination of

	dermatosis and sexually transmitted disease and learning about skin cancers.			
Learning outcomes (general and specific competences):	Expected outcomes: Synthesis of general and specific competencies - knowledge and skills. General Outcomes: Applying the independent learning, communication skills and teamwork capability. Specific Outcomes: Understanding and applying the peculiarities of dermatological and venereal disease. Analyzing the approach to treatment of patients.			
Course content (Syllabus):	Course consists of of lectures, seminars and exercises in duration of two weeks			
Format of instruction (mark in bold)	**Lectures**	**Exercises**	**Seminars**	Independent assignments
	Consultations	Work with mentor	Field work	Others
	Remarks:			
Student responsibilities	Students are required to attend classes, it is allowed to miss 20% of teaching.			
Screening student work (mark in bold)	Class attendance	Class participations	**Seminar essay**	**Practical training**
	Oral exam	**Written exam**	Continuous assessment	Essay

Detailed evaluation within a European system of points

STUDENTS RESPONSIBILITIES	**HOURS**	**PROPORTIONS OF ECTS CREDITS**	**PROPORTIONS OF MARK**
Class attendance and participations	30	1	
Seminar essay	20	1	20%
Written exam	50	1.5	60%
Oral exam	60	2	20%

Further clarification:
The exam consists of a practical, written and oral part.
According to the Book of Rules, the 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

Required literature:	

	Prof. Aleksandra Basta Juzbašić i sur. Dermatovenerology. Zagreb, Medicinska naklada, 2014.g.
Optional literature:	G. Rassner. Dermatology- textbook and atlas (translated by prof. dr. sc. Mirna Šitum), Naklada «Slap», 2004. Dubravka Šimić et al. Mucous disease multidisciplinary approach, Zagreb, Medicinska naklada, 2012.
Additional information about the course	Monitoring methods of teaching quality: - student questionnaire - quality analysis by students and teachers - exam results analysis - report of the office for teaching quality - external evaluation (visit of team for quality control)

Annexes: calendar classes

The number of teaching units	**TOPICS AND LITERATURE**
I.	Title: Development, texture and skin function. Eflorescence system on the skin. Basic Principles of Dermatological Diagnosis and Treatment of Allergic and Urticative Skin Diseases. Dermatitis (contact, professional, atopic). Amyloidic, intertriginous, numular dermatitis. Blood and lymphatic vessel diseases. Diseases of apocrine and ecrinous glands. Skin and mucous diseases caused by viruses. Bacterial skin infections (pyoderma). Skin diseases caused by borrelia, protozoa, parasitic skin diseases. Granulomatous skin diseases of unknown etiology. Chronic piodermy
	Short description: After the presentation of the basics of the subject, specific dermatoses are identified
	Literature. required and optional
II.	Title: A group of hereditary bullous epidermolysis. Group of pemphigus and pemphigoids. Group of herpetiform dermatitis and pustular dermatosis. Congenital disorders of connective tissue, acquired atrophy of the skin. Skin changes in the graft versus host reaction. Skin changes in pregnancy. Scleroderma, dermatomiozitis. Group of erythematosus, fatty tissue disease.
	Short description: illustrated examples of dermatological diseases.
	Literature: required and optional
III.	Title: sexually transmitted diseases. (Syphilis, gonorrhea) AIDS, Ulcus molle, lymphogranuloma venereum, donovanosis, nonspecific (negonoric) urethritis, herpes genitalis, HPV. Diseases of an external sex in men. Diseases of external sex in women A group of erythematosus dermatoses.Eritematosquamous and papulose dermatosis. Pityriasis rubra pilaris, parapsoriasis, erythrodermia, lichen ruber planus.
	Short description: Illustrated examples of sexually transmitted and dermatological diseases
	Literature: required and optional
IV.	Title: Hemorrhagic skin disorders. Disorders of metabolism of lipids, amino acids, mucopolysaccharides and purines. Hypersensitivity to insect bites, anaphylaxis, desensitisation. Infectious granulomatous skin diseases. Special course of bacterial skin diseases. Scalp disease. Disease of the nails.

	Physical and chemical damage of the skin. Benign vascular and epidermal tumors. Cysts. Benign tumors of adnexa, connective tissue, nervous and muscular tissue. Pre-cancer. Malignant epithelial tumors, intraepithelial cancers, invasive carcinomas. Malignant soft tissue and blood vessels, pigmental neurons, malignant melanoma. Paraneoplastic dermatoses. Lymphoma of pseudolymphoma.
	Short Description: Described with illustrated examples of dermatological diseases, benign and malignant tumors, and paraneoplastic dermatitis.
	Literature: required and optional
V.	Title: Diseases of skin caused by fungi and yeast, deep and systemic mycoses. Diseases of hair follicles and sebaceous glands. Diseases of apocrine and ecrinous glands. Pigmentation disorders. Diseases of lips and mouth cavities. Neurogenes and psychogenic manifestations on the skin. Nasal disorders of keratinization, (ihtiosis, keratoderma). Erythrokeratodermia. Follicular Keratoderma. Mastocytosis, Histiocytic Skin Diseases. Porphyry, hyalenosis
	Short description: Illustrated examples of dermatological diseases and hereditary dermatitis.
	Literature: required and optional
VI.	Title: Anamnesis of a dermatological patient. Dermatological status. The system of ephlorescence of the skin. The basic principles of dermatological diagnostics. Fundamental Principles of Dermatological Local and Systemic Therapy. Wound treatment of lower leg.
	Short description: The basics of dermatological diagnostics are presented.
	Literature: required and optional
VII.	Title: Allergology Diagnosis. Types of tests (intradermal, prick, scarring, epicutaneous tests). Other types of allergology tests. Microbiological diagnosis. Mycological diagnosis (native mycological preparations, Wood lamp). Particularities of dermatosis in childhood. Diagnostic and therapeutic guidelines of the most common dermatoses of children. Dermatological oncology (dermoscopy). Therapy of Sexual Diseases
	Short description: The basics of dermatological diagnostics are presented.
	Literature: required and optional
VIII.	Title: Demonstration of small interventions in dermatology: (excohleation, electrocauterization, application of liquid nitrogen in dermatology). Taking dermatological biopsy. Treatment of patients with systemic diseases. Treatment of patients with bullous dermatitis. Imunofluorescence diagnostics. Independent treatment of dermatological patients
	Short description: The basics of dermatological diagnostics are presented.
	Literature: required and optional

5th Year of Study

Name of the course	**Surgery**			**Code**	
Type of study program Cycle	Integrated study program, Medicine			**Year of study**	V
Credits (ECTS) :	**13**	*Semester*	IX	Number of hours per semester (l+e+s)	230 (55+115+60)
Status of the course:	mandatory	*Preconditions:*	Passed all exams of the 4th year	*Comparative conditions :*	
Access to course:	Fifth year students			*Hours of instructions*:	

Course teacher:	Professor Ante Kvesić, MD, PhD
Consultations:	As agreed
E-mail address and phone number:	ante.kvesic@skbm.ba
Associate teachers	Assistant professor Zdrinko Brekalo, MD, PhD Assistant professor Gordan Galić, MD, PhD Assistant professor Nikica Šutalo, MD, PhD Assistant professor Davor Kozomara, MD, PhD Zoran Trninić, MD, PhD Ivan Vukoja, MD Tihomir Vukšić, MD Vjekoslav Čuljak, MD, MSc Josip Mišković, MD, PhD Ludvig Letica, MD, MSc Goran Lakičević, MD,PhD Goran Đuzel, MD, MSc Ante Bošnjak, MD, MSc Violeta Šetka, MD, MSc Martina Šoljić, MD Assistant professor Vlatka Martinović, MD, PhD
Consultations:	An hour before and after the lectures
E-mail address and phone number:	+387 36 336272
The aims of the course:	1. To complete successfully a problem-oriented history and physical examination specific to the patient's complaints. 2. To complete successfully a preoperative full history and physical exam and to accurately order and interpret laboratory evaluations/diagnostic studies essential to determining the patient diagnosis. 3. To formulate a reasoned differential diagnosis for a patient problem.

	4. To synthesize an appropriate treatment plan, based on the patient's history, physical examination and laboratory results and diagnostic findings, with emphasis on problems commonly seen in general surgery and urology. 5. To synthesize and apply medical knowledge and treatment in evidence based manner in the care of patients and to participate actively in patient care and management under mentor supervision. 6. To educate and counsel patients with common acute and chronic diseases across that are commonly seen in a general surgery and urology setting. 7. To participate in attending to the emotional as well as physical health needs of the patient and family, with consideration of individual socio-cultural and psychosocial factors. 8. To learn how to become an effective member of a professional health care team and participate in coordinated team-based care. 9. To participate in positive, respectful communications and interactions with all patients and their families, including effectively eliciting patient complaint, utilizing good listening skills, and practicing confidentiality. 10. The increase understanding of the challenges and rewards of a career in General Surgery and Urology
Learning outcomes (general and specific competences):	<u>General outcomes:</u> Applying the theoretical knowledge of clinical findings, indications, contraindications, surgical approaches, types of surgical procedures and possible intra- and post-operative complications in the treatment of the most common surgical illnesses and wounds. <u>Specific outcomes – Knowledge</u> Understanding the mechanism of tissue damage: describe the process of tissue healing and inflammatory factors impact on the entire body Understanding the basic surgical techniques and principles of asepsis and antisepsis in the treatment of surgical patients Remembering the most common adult general surgical conditions and immediate life-threatening conditions, including trauma conditions with surgical presentation, under the supervision of a licensed general surgeon Evaluation of differential diagnosis in undifferentiated general surgical patient Synthesis of assessment and diagnostic plan based on differential diagnoses Evaluation of appropriate diagnostic tests in surgical patients Analyzing patient's history, physical examination and laboratory results and diagnostic findings in surgical patients Remembering the pre and post- operative treatment of patients eligible for elective surgery in consultation with a specialist in a particular branch of surgery and other medical specialties.

	Understanding the surgical treatment of polytraumatized patients, surgical management of patients with burns. Remembering the state of the terminal organ failure and the basic principles of transplantation surgery Understanding the particularity of diagnostic and therapeutic procedures in the care of pediatric surgical patient <u>Specific outcomes – Skills</u> Applying an accurate problem-focused history and physical examination on children, adolescents, adults, and the elderly in the outpatient, emergency, and inpatient settings in surgery Applying a management of a surgical patient in the pre-operative, intra-operative, post-operative and ambulatory surgical settings Remembering diseases and conditions that require elective surgery and conditions that require immediate surgical treatment and apply appropriate procedures under the supervision of licensed surgeon. Understanding the indications and applications for appropriate surgical procedures Analyzing possible early postoperative complications in the treatment of the most common surgical diseases and injuries (infections, surgical wound dehiscence, and respiratory and urinary complications) Evaluate appropriate number of different diagnostic and therapeutic procedures made under supervision in accordance with the Booklet of Clinical Skills			
Course content (Syllabus):	General and Digestive Surgery, Thoracic Surgery, Cardiovascular Surgery, Plastic and Reconstructive Surgery, Transfusion, Pediatric Surgery.			
Format of instruction (mark in bold)	**Lectures**	**Exercises**	**Seminars**	**Independent assignments**
	Consultations	**Work with mentor**	Field work	Other
	Remarks: Students are required to attend guards in the emergency unit under the supervision of licensed surgeon.			
Student responsibilities	In accordance to Rules of studying and Deontological code for Mostar University Medical School students			
Screening student work (mark in bold)	Class attendance	Class participations	Seminar essay	**Practical training**
	Oral exam	**Written exam**	Continuous assessment	Essay

Detailed evaluation within a *European system of points*

STUDENTS RESPONSIBILITIES	**HOURS**	**PROPORTIONS OF ECTS CREDITS**	**PROPORTIONS OF MARK**
Class attendance and participations	60	2	0%
Seminar essay	65	2	25%

Written exam	90	3	25%
Oral exam	175	6	50%

Students have exams according to the specified examination periods.
Each student is mandatory to pass:
1. Written test
2. Practical skills exam – evaluated by licensed surgeon and Medical School teacher
3. Oral exam – evaluated by Mostar University Medical School professors
According to the Regulations on studying final grade is calculated as the sum of the test, practical and oral examination. Grading of the test is done in the following way:
According to the regulations of the study, final grade on the test is obtained:
A = 91-100% 5
B = 79 to 90% 4
C = 67 to 78% 3
D = 55 to 66% 2
F = 0 to 54% 1

Required literature:	1. Ante Kvesić i suradnici: KIRURGIJA. Medicinska naklada Zagreb 2016 2. Bradić i suradnici: KIRURGIJA 3. Ivan Prpić: Kirurgija za medicinare, Školska knjiga Zagreb,1995 4. Mladen Štulhofer: Kirurgija probavnog sustava. Medicinska naklada Zagreb 1999 5. Ante Kvesić, Šime Vučkov, Izabrana poglavlja iz Dječje kirurgije 6. J. Paladino: << Kompendij neurokirurgije>>, Zagreb, Naklada Ljevak, 2004 (neurokirurgija) 7. Šoša, Sutlić, Stanec, Tonković: „Kirurgija“, Zagreb,Naklada Ljevak,2007 (plastična kirurgija) 8. Zabilješke s predavanja i seminara
Optional literature:	1. Zinner MJ, Asley SW. Abdominal operations. Maingot's, New York, Chicago, San Francisco et al., 2012 2. O'Neill JA, Rowe MI, Grosfeld JL, Fonkalsrud EW, Coran AG. St Louis, Baltimore, Boston, Mosby Co, 1999 3. Rockwood Ch, Green D. Fractures in children. Philadelphia, London, Mexico City, New York, Lipping Co, 1984 4. Rockwood CH. Fractures in adults. Philadelphia, London, Mexico City, New York, Lipping Co, 1984
Additional information about the course	Methods of monitoring the quality of teaching: - Student survey - Quality control analysis - Analysis of exam results - External evaluation (teams for quality control)

Annexes: calendar classes

The number of teaching units	**TOPICS AND LITERATURE**
I.	Title: Work organization in the OR. Desinfection and antisepsis. Wound management
	Short description: Asepsis, antisepsis, desinfection, Surgical instruments and technical OR equipment: Surgical technique principles and sutures.
	Literature: mandatory and optional
II.	Title: Infection in Surgery. Polytrauma. Preoperative preparation.
	Short description: Nosocomial infections in Surgery, causes, prophylaxis
	Literature: mandatory and optional
III.	Title: Endocrine glands Surgery. Minimal invasive Surgery.
	Short description: Gallbladder and Billiary tract diseases. Retroperitoneal tumors. Diseases of the Pancreas. Emergency laparoscopic procedures.
	Literature: mandatory and optional
IV.	Title: Portal hypertension. Diseases of the Spleen. Acute abdomen
	Short description: Abdominal injuries. Hernias of the abdominal wall.
	Literature: mandatory and optional
V.	Title: Surgical diseases of Stomach and Duodenum Diseases of the small intestine, colon and rectum. Surgery of anorectum
	Short description: Management of the Intestinal obstruction.
	Literature: mandatory and optional
VI.	Title: Transplantation Surgery. Diseases of the Liver.
	Short description: Surgical management of intraabdominal hemorrhage
	Literature: mandatory and optional
VII.	Title: Basic principles of Thoracic Surgery. Diseases of the chest wall, trachea and lungs.
	Short description: Diseases of the oesophagus and mediastinum. Diseases of Pleura and diaphragm.
	Literature: mandatory and optional
VIII.	Title: Breast Surgery. Thoracic trauma.
	Literature: mandatory and optional
IX.	Title: Urinary neurophysiology. Neurogenic bladder
	Incontinence.
	Literature: mandatory and optional
X.	Title: Urogenital tumors, trauma and infections.
	Literature: mandatory and optional
XI.	Title: BHP. Urethral strictures. Bladder tumors. Reconstruction un Urology.
	Short description: Obstructive urophaty. Urolithiasis. Erectile dysfunction, Prostate cancer.
	Literature: mandatory and optional
XI.	Title: Cardiosurgical emergency. Heart transplantation, Aortal aneurysm. Surgery of Carotide artery.
	Literature: mandatory and optional
XII.	Title: Peripheral obliterative atherosclerosis. Varicose veins, Pulmonary embolia.

	Short description: Acute and chronical ischemia of the limb and intestines.
	Literature: mandatory and optional
XIII.	Title: Neurotraumatology. Pediatric neurosurgery. Neurooncology.
	Literature: mandatory and optional
XIV.	Title: Surgery of peripheral nerves. Spinal neurosurgery. Infections. Vascular neurosurgery.
	Literature: mandatory and optional
XV.	Title: History and development of Plastic and reconstructive surgery. Chronical wound. Diabetic foot, Basic principles of plastic surgery. Skin grafts, Microsurgery.
	Literature: mandatory and optional
XVI.	Title: Surgery of the wrist. Peripheral nerves damage. Damage of the tendons. Wrist infections. Tumors of the wrist.
	Short description: Dupuytren's contracture. Burns and congelation. Skin grafts in burnt. Congenital anomalies of the wrist and sternum. Transsexualism
	Literature: mandatory and optional
XVII.	Title: Skin tumors. Diagnosis and treatment of melanoma. Aesthetic surgery of head and neck and body. Diseases of the breast. Ginecomasty. Breast reconstruction.
	Short description: Radical surgery for malignant tumors and reconstruction possibilities. New tendencies in plastic and reconstructive surgery.
	Literature: mandatory and optional
XVIII.	Title: Introduction in war surgery. War and massive traumatism – priorities and triage.
	Short description: Specialties in war and massive injuries. Mechanisms of injuries and treatment. Experiences from surgical war unit.
	Literature: mandatory and optional
XIX.	Title: History of pediatric surgery. Anomalies of head and neck. Development anomalies.
	Short description: Biliary atresia. Choledochal cyst. Chalasia and achalasia. Congenital diaphragmatic hernia. Hypertrophic pyloric stenosis. Intestinal atresia.
	Literature: mandatory and optional
XX.	Title: Oesophageal atresia. Development anomalies of abdominal wall.
	Short description: Meconium ileus. Congenital megacolon. Rectal and anal atresia. Anomalies of the kidney.
	Literature: mandatory and optional
XXI.	Title: Hydronephrosis. VUR, Hypospadia, Cryptorchidism, Trauma in children. Burns in children.

Name of the course	**Neurosurgery**			**Code**	
Type of study program *Cycle*	Integrated study program, Medicine			**Year of study**	V
Credits (ECTS) :	**0,5**	*Semester*	IX	Number of hours per semester (l+e+s)	15 (5+5+5)
Status of the course:	mandatory	*Preconditions:*	Passed all exams of the 4th year	*Comparative conditions:*	
Access to course:	Fifth year students			*Hours of instructions*:	

Course teacher:	Professor Krešimir Rotim, MD, PhD
Consultations:	As agreed
E-mail address and phone number:	dekan@zvu.hr
Associate teachers	Professor Bruno Splavski, MD, PhD Goran Lakičević MD, PhD Alen Livaja MD
Consultations:	An hour before and after the lectures
E-mail address and phone number:	
The aims of the course:	The objectives of this course are: to introduce medical students with basic facts about neurosurgery, introduce to the concepts of neurosurgical procedures, diagnoses and treatment.
Learning outcomes (general and specific competences):	Students will develop knowledge of clinical examination of a neurosurgical patient, of diagnostic and therapeutic procedures to treat patients with injuries and/or diseases of central and/or peripheral nervous system, of the degree to which a neurosurgery is urgent, types of neurosurgeries, their successfulness or possible complications.
Course content (Syllabus):	Introduction to neurosurgery; History of neurosurgery; Diagnostic procedures in neurosurgery (history taking, clinical neurological examination, EMG, EEG, CT, MRI, LM); Principles of neurosurgical treatment (trepanation, craniotomy, pain treatment; Space-compressive intracranial processes-patophysiology of intracranial space (ICP, different types of impaction and signs); Intracranial tumors-neurooncology; Hydrocephalus in children and adults – circulation of CS fluid; Differential diagnosis of nerosurgical diseases; Children neurosurgery; Cerebrovascular surgery; Craniocerebral injuries-neurotraumatology; Intracranial haematoma; Concussion-contusion-pressing of the brain; Glasgow coma scale score (GCS score). Diseases and injuries of the spine and spinal cord. Discoradicular conflict C 5, 6, 7, 8/ L2, 3, 4, 5, S1. Prognosis and rehabilitation of neurosurgical patients.

Format of instruction (mark in bold)	**Lectures**	**Exercises**	**Seminars**	**Independent assignments**
	Consultations	**Work with mentor**	Field work	Other
	Remarks: Students are required to attend guards in the emergency unit under the supervision of licensed surgeon.			
Student responsibilities	In accordance to Rules of studying and Deontological code for Mostar University Medical School students			
Screening student work (mark in bold)	Class attendance	Class participations	Seminar essay	Practical training
	Oral exam	**Written exam**	Continuous assessment	Essay

Detailed evaluation within a *European system of points*

STUDENTS RESPONSIBILITIES	**HOURS**	**PROPORTIONS OF ECTS CREDITS**	**PROPORTIONS OF MARK**
Class attendance and participations	0	0	0%
Seminar essay	0	0	0%
Written exam	10	0,5	60%
Oral exam	10	0	40%

Written and oral test.
According to the regulations of the study, final grade on the test is obtained:
A = 91-100% 5
B = 79 to 90% 4
C = 67 to 78% 3
D = 55 to 66% 2
F = 0 to 54% 1

Required literature:	Rotim K., Sajko T. Neurokirurgija. ZVU; 2010.
Optional literature:	1. Paladino J. Kompendij neurokirurgije. Zagreb: Naklada Ljevak; 2004. 2. Rotim K. Neurotraumatologija. Zagreb: Medicinska naklada; 2006.
Additional information about the course	Methods of monitoring the quality of teaching: - Student survey - Quality control analysis - Analysis of exam results - External evaluation (teams for quality control)

Annexes: calendar classes

The number of teaching units	**TOPICS AND LITERATURE**
I.	Title: History of neurosurgery; Diagnostic procedures in neurosurgery
	Short description: history taking, clinical neurological examination, EMG, EEG, CT, MRI, LM
	Literature: mandatory and optional
II.	Title: Principles of neurosurgical treatment
	Short description: trepanation, craniotomy, pain treatment; Space-compressive intracranial processes-patophysiology of intracranial space (ICP, different types of impaction and signs)
	Literature: mandatory and optional
III.	Title: Intracranial tumors-neurooncology; Hydrocephalus in children and adults
	Short description: circulation of CS fluid; Differential diagnosis of nerosurgical diseases; Children neurosurgery; Cerebrovascular surgery; Craniocerebral injuries-neurotraumatology; Intracranial haematoma; Concussion-contusion-pressing of the brain; Glasgow coma scale score (GCS score). Diseases and injuries of the spine and spinal cord. Discoradicular conflict C 5, 6, 7, 8/ L2, 3, 4, 5, S1. Prognosis and rehabilitation of neurosurgical patients.
	Literature: mandatory and optional

Name of the course	**Urology**			**Code**	
Type of study program Cycle	Integrated study program, Medicine			**Year of study**	V
Credits (ECTS) :	**1,5**	*Semester*	IX	Number of hours per semester (l+e+s)	40 (10+30+0)
Status of the course:	mandatory	*Preconditions:*	Passed all exams of the 4th year	*Comparative conditions:*	
Access to course:	Fifth year students			*Hours of instructions*:	
Course teacher:	Professor Ivan Gilja, MD, PhD				
Consultations:	As agreed				
E-mail address and phone number:	urologija@obsd.hr				
Associate teachers	Professor Boris Ružić, MD, PhD Davor Tomić, MD, PhD Mario Kordić, MD, MSc				

	Dino Zalihić, MD, MSc Manuel Tipurić, MD, MSc Vladimir Bekavac, MD, MSc Julijan Baranik, MD, MSc Safet Omerović, MD			
Consultations:	An hour before and after the lectures			
E-mail address and phone number:				
The aims of the course:	The aim of the course is the adoption of basic knowledge and skills in the field of urology. The aim is to introduce students and train them for physical examination, malignant patient treatment, further knowing to place urinary catheter in men and women, to know diagnostic and therapeutic algorithms for malignant urogenital tumors. Know diagnostic and therapeutic algorithms for urolithiasis, uroinfected patients. Know methods and algorithms for early detection of malignant urogenital tumors. Know diagnostic and therapeutic algorithms in patients with urogenital system injuries. Know how to handle the wound in an adequate way and recognize the urgency of urology.			
Learning outcomes (general and specific competences):	Describe and explain the etiology and clinical signs for: tumors of adrenal gland, kidney, ureter, bladder, prostate, urethra, penis and testis, urolithiasis, benign prostatic hyperplasia, obstructive uropathy, inflammatory disease, neurogenic bladder, erectile dysfunction, male infertility, the most child urological pathology, urological trauma, vascular disease in urology and end-stage renal disease. Name the most important diagnostic methods and list general diagostic results in the diagnostics of tumors of adrenal gland, kidney, ureter, bladder, prostate, urethra, penis and testis, urolithiasis, benign prostatic hyperplasia, obstructive uropathy, inflammatory disease, neurogenic bladder, erectile dysfunction, male infertility, the most child urological pathology, urological trauma, vascular disease in urology and end-stage renal disease. Indicate and generally explain the treatment choices for: tumors of adrenal gland, kidney, ureter, bladder, prostate, urethra, penis and testis, urolithiasis, benign prostatic hyperplasia, obstructive uropathy, inflammatory disease, neurogenic bladder, erectile dysfunction, male infertility, the most child urological pathology, urological trauma, vascular disease in urology and end-stage renal disease. Perform the detailed clinical examination of the abdomen, prostate, penis and testis.			
Course content (Syllabus):	General urology, child urology, andrology, urolithiasis, urological oncology, urodynamics and neurourology, urogynaecology, kidney transplantation.			
Format of instruction (mark in bold)	**Lectures**	**Exercises**	**Seminars**	Independent assignments
	Consultations	Work with mentor	Field work	Other

	Remarks: Students are required to attend guards in the emergency unit under the supervision of licensed surgeon.			
Student responsibilities	In accordance to Rules of studying and Deontological code for Mostar University Medical School students			
Screening student work (mark in bold)	Class attendance	Class participations	Seminar essay	**Practical training**
	Oral exam	**Written exam**	Continuous assessment	Essay

Detailed evaluation within a *European system of points*

STUDENTS RESPONSIBILITIES	**HOURS**	**PROPORTIONS OF ECTS CREDITS**	**PROPORTIONS OF MARK**
Class attendance and participations	0	0	0%
Seminar essay	0	0	0%
Written exam	30	1	60%
Oral exam	10	0,5	40%

Each student is mandatory to pass:
1. Written test
2. Oral exam

According to the regulations of the study, final grade on the test is obtained:
A = 91-100% 5
B = 79 to 90% 4
C = 67 to 78% 3
D = 55 to 66% 2
F = 0 to 54% 1

Required literature:	Selected chapters of Smith's Urology, 18th edition. McGraw Hill; 2012.
Optional literature:	
Additional information about the course	Methods of monitoring the quality of teaching: - Student survey - Quality control analysis - Analysis of exam results - External evaluation (teams for quality control)

Annexes: calendar classes

The number of teaching units	**TOPICS AND LITERATURE**
I.	Title: Introduction to Urology
	Short description: General urology and child urology, kidney tumors. Get acquainted with the goal of urology. To become acquainted with and gain knowledge of the historical facts of urology development. Know the basics of diagnosis and treatment of kidney tumors
	Literature: mandatory and optional
II.	Title: Benign tumors and inflammatory prostate diseases

	Short description: Know to recognize the most common benign prostate tumor (adenom) and to distinguish acute from chronic prostatitis. Understand how to treat prostate and prostate adenoma. Explain indications and contraindications for certain treatment methods. Know to describe the mechanism of action of drugs for the treatment of prostate adenoma.
	Literature: mandatory and optional
III.	Title: Urological oncology and urogynaecology
	Short description: Adopt basic diagnosis, treatment and monitoring algorithm for patients with retroperitoneal tumors. Know to recognize the difference between malignant and benign tumors.
	Literature: mandatory and optional
IV.	Title: Urodynamics and neurourology
	Short description: Explain and know to describe certain types of urolithiasis. Explain and know basic algorithms for diagnosing and treating urolithiasis.
	Literature: mandatory and optional
V.	Title: Kidney transplantation
	Short description: Know basics of donor selection, tissue typing and kidney transplantation techniques, and monitoring of patients with transplanted kidney.
	Literature: mandatory and optional

Name of the course	**Clinical Oncology**				**Code**	
Type of study program Cycle	Integrated study program, Medicine				**Year of study**	V
Credits (ECTS) :	**2**	*Semester*	IX		Number of hours per semester (l+e+s)	50 (5+35+10)
Status of the course:	required	*Preconditions:*		*Comparative conditions:*		
Access to course:	Fifth year students			*Hours of instructions*:		According to schedule
Course teacher:	Professor Nikola Đaković, MD, PhD					
Consultations:	Mondays and Thursdays from 9 to 10 or according to the deal					
E-mail address and phone number:	0038736335600					
Associate teachers	Inga Marijanović, MD, PhD Ivana Tica Sedlar, MD, MSc					
Consultations:						
E-mail address and phone number:						
The aims of the course:	To introduce medicine students to:					

<table>
<tr><td></td><td colspan="4">- bases of malignant diseases and risk factors for their development
- treatment and its side effects
- the basics of palliative medicine and the treatment of the dying patient
- preventive treatment measures.</td></tr>
<tr><td>Learning outcomes (general and specific competences):</td><td colspan="4">General outcomes:
Applying the independent learning throughout the course by using critical and self-critical judgment of scientific truths.
Remembering the possession of personal qualities (team work and personal involvement, curiosity, active listening and building positive relationship with team members).
Specific outcomes:
Understanding the basics of oncology science and evaluation of an oncological patient.
Acquiring the approach to oncological patient.
Remembering the diagnostic methods in oncology.
Remembering the basic principles of treatment in oncology and its side effects.
Understanding the principles of palliative care and treatment of dying patient.</td></tr>
<tr><td>Course content (Syllabus):</td><td colspan="4">Clinical Oncology course consists of lectures, seminars and exercises conducted at School of Medicine Mostar and Oncology Department of University Hospital Mostar.</td></tr>
<tr><td rowspan="3">Format of instruction (mark in bold)</td><td>Lectures</td><td>Exercises</td><td>Seminars</td><td>Independent assignments</td></tr>
<tr><td>Consultations</td><td>Work with mentor</td><td>Field work</td><td>Other</td></tr>
<tr><td colspan="4">Remarks:</td></tr>
<tr><td>Student responsibilities</td><td colspan="4">Students will be evaluated based on:
• Active participation in seminars and exercises.
• Preparation of teaching units for seminars
• Read teaching texts and develop their own critical thinking about the material and express those views.
• work in small groups</td></tr>
<tr><td rowspan="3">Screening student work (mark in bold)</td><td>Class attendance</td><td>Class participations</td><td>Seminar essay</td><td>Practical training</td></tr>
<tr><td>Oral exam</td><td>Written exam</td><td>Continous assesment</td><td>Essay</td></tr>
<tr><td></td><td></td><td></td><td></td></tr>
<tr><td colspan="5">Detailed evaluation within a European system of points</td></tr>
<tr><td>STUDENTS RESPONSIBILITIES</td><td>HOURS</td><td colspan="2">PROPORTIONS OF ECTS CREDITS</td><td>PROPORTIONS OF MARK</td></tr>
</table>

Class attendance and participations	8	0.2	0
Oral exam	30	1	50%
Written exam	15	0,5	30%
Practical work	10	0,3	20%

The assessment criteria of written exam:
According to the regulations of the study, final grade is obtained:
A = 91-100% 5
B = 79 to 90% 4
C = 67 to 78% 3
D = 55 to 66% 2
F = 0 to 54% 1

Required literature:	DeVita H. et al.: Principles and Practice of Oncology, 10th Edition, Lippincott, Williams & Wilkins, 2015.
Optional literature:	
Additional information about the course	Students' responsibilities are in accordance to Rules of studying and Deontological code of MEFMO students. Methods of monitoring the quality of teaching: student survey Quality control analysis by the students and teachers Analysis of passing the exams The report of the Office for the quality of teaching

Annexes: calendar classes

The number of teaching units	**TOPICS AND LITERATURE**
I.	Title: Introduction to Oncology, etiology and Tumor Epidemiology. Cytostatic Therapy. Radiotherapy, hormone therapy
	Short description:
	Literature: required and optional
II.	Title: Multimodal approach to treatment of oncological patients, role of GP, basics of tumor diagnostics, TNM tumor classification. Tumor Biology, Cancerogenesis - tumor etiology
	Short description: Breast cancer, lung cancer. Colon cancer, gynecological tumors. Tumor markers, laboratory. Diagnostics in oncology, treatment of tumors and unwanted consequences of treatment, care for a dying patient with cancer
	Literature: required and optional
III.	Title: Tumor Immunology, reaction of organism to the tumor, the tumor and the interrelationships of the organism. Combined approach in cancer treatment
	Short description: Urogenital tumors, prevention of oncological diseases, immunotherapy. Oncogene, cell division control, tumor growth kinetics. Metastasis process, tumor circulation, tumor metabolism
	Literature: required and optional

Name of the course	**Transfusiology and Transplantology**				**Code**	
Type of study program Cycle	Integrated study program, Medicine				**Year of study**	V
Credits (ECTS) :	**0,5**	*Semester*	I		Number of hours per semester (l+e+s)	20 (7+8+5)
Status of the course:	required	*Preconditions:*		*Comparative conditions:*		
Access to course:	Fifth year students			*Hours of instructions*:		According to schedule
Course teacher:	Head: Prof. Vlatka Martinović					
Consultations:	Mondays and Thursdays from 9 to 10 or according to the deal					
E-mail address and phone number:	vlatkamartinovich@gmail.com 0038736335600					
Associate teachers	Jadranka Knežević MD MSc Ružica Papoči, MD					
Consultations:	Mondays and Thursdays from 9 to 10 or according to the deal					
E-mail address and phone number:	mef@sum.ba 0038736335600					
The aims of the course:	Transfusion medicine holds a place of prime importance in organ transplant surgeries. There is a huge demand of organs worldwide with long waiting periods before the organ is available for transplant. The course intends to introduce medical students to acquire the bases in transplantation field and clinical transfusion medicine and to be able to absorb advanced knowledge in the area through perspective on health and disease.					
Learning outcomes (general and specific competences):	On completion of the course, the student should achieve general and specific outcomes. - to analyze the basic theory within cellular and molecular - to investigate commonly occurring immunochemical analytical techniques from laboratory supervision - to be able to synthetize the practical use of theoretical knowledge in basic transfusion medicine - to be able to understand the structure, function of human at the molecular and cellular level of the immune defense, bodies and organism level - to understand the background, principle and carrying-out of basic and commonly occurring laboratory methodology within transfusion medicine - to describe and understand the genetics and AB0-systemets structure of the blood group systems and the Rh-system					

<table>
<tr><td></td><td colspan="4">- to describe the formation of antibodies within the different blood group systems and blood component production
Outcomes will be evaluated with continuous assessment, quizzes seminars and colloquium exercise and active forms of learning during exercises, lectures and seminars, and the final exam.</td></tr>
<tr><td>Course content (Syllabus):</td><td colspan="4">L1 (2 hours) Solid organ transplantation: current status of perioperative transfusion
L2 (2 hours) Role of transfusion in transplant
L3 (2 hours) Immunohaematological basis of transplants
L4 (1 hour) Concept of passenger lymphocytes in organ transplants

S1 (2 hours) Tissue typing.
S2 (2 hours) Transplant infectious diseases
S3 (2 hours) The organisation around logistic and quality assurance at blood donation and transplantation.
S4 (2 hours) Blood donation, the production of blood components, storing and control.

E1 (1 hour) Analytical methods based on antigen-antibody reactions
E2 (2 hour) The most common blood group serological technologies, importance of immunoglobulin class, sources of errors
E3 (1 hour) AB0 and the biochemistry, genetics, antibody formation, importance at transfusion, pregnancy and transplantation of the Rh-system
E4 (1 hour) Ethical issues in connection with blood donation.</td></tr>
<tr><td rowspan="3">Format of instruction (mark in bold)</td><td>Lectures</td><td>Exercises</td><td>Seminars</td><td>Independent assignments</td></tr>
<tr><td>Consultations</td><td>Work with mentor</td><td>Field work</td><td>Other</td></tr>
<tr><td colspan="4">Remarks: The teaching is given as lectures, seminars and exercises.</td></tr>
<tr><td>Student responsibilities</td><td colspan="4">Students will be evaluated based on:
• Active participation in seminars and exercises.
• Preparation of teaching units for seminars
• Read teaching texts and develop their own critical thinking about the material and express those views.
• work in small groups</td></tr>
<tr><td rowspan="3">Screening student work (mark in bold)</td><td>Class attendance</td><td>Class participations</td><td>Seminar essay</td><td>Practical training</td></tr>
<tr><td>Oral exam</td><td>Written exam</td><td>Continous assesment</td><td>Essay</td></tr>
<tr><td></td><td></td><td></td><td></td></tr>
<tr><td colspan="5">Detailed evaluation within a European system of points</td></tr>
</table>

STUDENTS RESPONSIBILITIES	HOURS	PROPORTIONS OF ECTS CREDITS	PROPORTIONS OF MARK
Class attendance and participations	5	0	
Seminar essay	4	0	
Written exam	20	0,5	100%
Practical work	3	0	

The assessment criteria of written exam:
Examination takes place as independent written test.
According to the regulations of the study, final grade is obtained:
A = 91-100% 5
B = 79 to 90% 4
C = 67 to 78% 3
D = 55 to 66% 2
F = 0 to 54% 1

Required literature:	1. Handbook of transfusion medicine. NHS Blood and Transplant, D.B.L. McClelland. 4th ed. 2007 2. R.S. Sarkar, Brig, J. Philip, Col, and Pramod Yadav, Dy Comdt. Transfusion medicine and solid organ transplant – Update and review of some current issues. Med J Armed Forces India. 2013 Apr; 69(2): 162–167. Updated scientific article
Optional literature:	Susan E. Lederer. Flesh and Blood: Organ Transplantation and Blood Transfusion in 20th Century America 1st Edition, Oxford University Press 2008.
Additional information about the course	Students' responsibilities are in accordance to Rules of studying and Deontological code of MEFMO students. Methods of monitoring the quality of teaching: student survey Quality control analysis by the students and teachers Analysis of passing the exams The report of the Office for the quality of teaching

Annexes: calendar classes

The number of teaching units	TOPICS AND LITERATURE
I.	Title: Solid organ transplantation: current status of perioperative transfusion
	Short description: The number and choice of blood products transfused during an organ transplant surgery is highly variable and it depends on the center and the organ to be transplanted. Students will be introduced to current status of the field
	Literature: required and optional
II.	Title: Role of transfusion in transplant
	Short description: to describe the role of transplantation immunology and induction of donor-specific tolerance without the need for chronic immunosuppression
	Literature: required and optional

III.	Title: Immunohaematological basis of transplants
	Short description: This chapter will focus on ABO grouping as the primary test for organ donation and transplantation in the view of graft rejection.
	Literature: required and optional
IV.	Title: Concept of passenger lymphocytes in organ transplants
	Short description: This chapter will focus on the source of the isohemagglutinins in viable donor B lymphocytes that are passively transferred with the organ at the time of transplantation.
	Literature: required and optional

Name of the course	**Gynecology and Obstetrics**			**Code**	
Type of study program Cycle	Integrated study program, Medicine			**Year of study**	V
Credits (ECTS) :	**11**	*Semester*	IX	Number of hours per semester (l+e+s)	200 (70+70+60)
Status of the course:	mandatory	*Preconditions:*	Passed all exams of the 4th year	*Comparative conditions :*	
Access to course:	Fifth year students			*Hours of instructions*:	According to schedule
Course teacher:	Associate Professor Vajdana Tomić, MD, PhD				
Consultations:	In agreement with students				
E-mail address and phone number:	vajdana.tomic@sve-mo.ba tel/fax +387 36 336211				
Associate teachers	Full Professor Ante Ćorušić, MD, PhD Full Professor Slavko Orešković, MD, PhD Full Professor Herman Haller, MD, PhD Assistant Professor Vjekoslav Mandić, MD, PhD Assistant Professor Zdenko Kraljević, MD, PhD Assistant Professor Vedran Bjelanović, MD, PhD Tatjana Barišić, MD, PhD Dragan Soldo, MD, MSc Marinko Mišić, MD, MSc Tanja Krešić, MD, MSc Ana Šimić Dugandžić, MD, MSc Ana Bošković, MD, MSc Nikolina Penava, MD Miroslav Zadro, MD Darko Knežević, MD				
Consultations:	-				

<table>
<tr><td>E-mail address and phone number:</td><td colspan="4">-</td></tr>
<tr><td>The aims of the course:</td><td colspan="4">To introduce students to the basic principles of gynecology and obstetrics. Focus is placed on acquiring of knowledge and skills that are required to understand pathophysiological background, recognition of clinical symptoms, differential diagnosis conclusions, critical evaluation of laboratory findings and rational treatment of the most common gynecological diseases and complications of pregnancy.</td></tr>
<tr><td>Learning outcomes (general and specific competences):</td><td colspan="4">General outcomes
Know how to plan independent learning through the study program with the method of critical and self-critical questioning of scientific truth. Demonstrate personal qualities (team work and personal contribution, interest in work, active listening, and build positive relationships with members of the group)
Specific outcomes
Student explains and interprets:
• anatomy of the pelvis (bones and planes of the pelvis, pelvic and urogenital diaphragms) and femal genital organs.
• the physiology of the menstrual cycle
• physiological changes during pregnancy
• basic principles of the antenatal care
• patophysiological mechanisms, clinical and laboratory features, treatment and prevention of the most common pregnancy complications
• physiology and pathology of delivery and puerperium
• pathogenesis, clinical and laboratory features, rational treatment of the most common gynecological diseases
• clinical features, early diagnosis, treatment and prevention of gynecological malignancies
• characteristics of humane reproduction, infertility treatment and family planning
• postmenopausal changes
The outcomes will be evaluated with continuous assessment, active forms of learning during lectures and seminars, and on the final exam.</td></tr>
<tr><td>Course content (Syllabus):</td><td colspan="4">Classes include the study of the fundamental principles of obstetrics and gynecology as well as acquisition of basic clinical skills. Classes are held in several separate thematic sections that include lectures, seminars and exercises in small groups. During exercises students with assistants detail processed patients and participate in the daily work of the clinic. After attending classes, the students are given a written, practical and oral exam.</td></tr>
<tr><td rowspan="2">Format of instruction (mark in bold)</td><td>Lectures</td><td>Exercises</td><td>Seminars</td><td>Independent assignments</td></tr>
<tr><td>Consultations</td><td>Work with mentor</td><td>Field work</td><td>Other</td></tr>
</table>

	Remarks: work in clinic (interactive teaching)
Student responsibilities	Attendance and active participation in all forms of teaching - lectures, seminars, excersises. During exercises: anamnesis and clinical examination of patients with the planning of laboratory analysis and treatment. Students are required to attend classes, it is allowed to be absent from 20% of classes. The final exam consists of a written, practical and oral part.

Monitoring and evaluation of student work (mark in bold)	**Class attendance**	**Class participations**	Seminar work	**Practical training**
	Oral exam	**Written exam**	**Continous assesment**	Essay

Detailed evaluation within a *European system of points*

STUDENTS RESPONSIBILITIES	**HOURS**	**PROPORTIONS OF ECTS CREDITS**	**PROPORTIONS OF MARK**
Class attendance and participations	85	3	0%
Work in small groups (exercise)	90	3	0%
Written, practical and oral exam	145	5	100%

Further clarification:
Exam in gynecology and obstetrics is taken after attended course, and consists of written, practical (examination of patients with interpretation) and an oral part. Written exam is compulsory and qualifying for access to practical and oral exam. To pass the written exam, students need to achieve the score of 55% or more, which is elimination threshold.
According to the regulations of the study, grade is obtained:
A = 91-100% 5
B = 79 to 90% 4
C = 67 to 78% 3
D = 55 to 66% 2
F = 0 to 54% 1
The oral part of exam consists of four questions from different areas (from each area by one): 1. Practical obstetrics (delivery and puerperium), 2. Perinatology (pregnancy, fetus and newborn), 3. General gynecology with gynecological oncology and urology, 5. Humane reproduction and gynecological endocrinology (four groups of questions-cards).
The final grade is the average score of the written and oral exam.

Required literature:	1. Đelmiš J, Orešković S. et al.: Fetal medicine and Obstetrics. Medical publication, Zagreb, 2014. 2. Kuvačić I, Kurjak A, Đelmiš J. et al. Obstetrics. Medical publication, Zagreb, 2009. 3. Šimunić V. et al. Gynecology. Medical library, Zagreb, 2001.

	4. http://emedicine.medscape.com/obstetrics_gynecology
Optional literature:	1. Jonathan S. Berek&Neville F. Hacker. Practical Gynecology Oncology. Fifth edition. Lippincott Williams&Wilkins,2010. 2. W. Pschyrembel. Practical obstetrics and obstetrical operations. Medical publication, Zagreb, 1975.
Additional information about the course	Method of monitoring the quality of teaching: - Student questionnaire - Analysis of the quality of teaching by students and teachers - Analysis of exam results - Report of the Office for quality of teaching - Self-evaluation and external evaluation (visit of team for quality control)

Annexes: calendar classes

The number of teaching units (l+e+s)	TOPICS AND LITERATURE
I.	Title: Introduction to the course and historical review
	Short description: The aims of the gynecology and obstetrics course. Historical development of obstetrics and gynecology, then neonatology and part of gynecological cytology. Overview and importance of vital statistics.
	Literature: required and optional
II.	Title: Pelvic and perineum anatomy. Embryology.
	Short description: Overview and practical anatomy of the pelvis, pelvis bone, peritoneum. Pelvic and urogenital diaphragms. Blood vessels, nerves and lymph vessels of the pelvis. Female genital organs. The pelvis planes and spaces. Development phases in embryology.
	Literature: required and optional
III.	Title: Gynecological-obstetrics propedeutics
	Short description: Anamnesis and diagnostic methods in gynecology and obstetrics. Gynecological and obstetric examination; Papanicolau (PAPA) test; Ultrasound diagnostics, Colposcopy and biopsy; Cardiotography (CTG); Laboratory tests; X-ray diagnostics (Rtg); Endoscopic diagnostic methods-laparoscopy and hysteroscopy.
	Literature: required and optional
IV.	Title: Fertilization and implantation
	Short description: The basics of the menstrual cycle, the physiology of fertilization and blastocyst implantation.
	Literature: required and optional
V.	Title: Early diagnosis of pregnancy, Development and function of placenta, Physiology and pathology of amniotic fluid.
	Short description: Methods of early pregnancy diagnosis. Development of placenta, placental function. Composition and alteration of amniotic fluid, determination of fetal maturity and threat to the fetus, ultrasonic evaluation of amniotic fluid amount.
	Literature: required and optional
VI.	Title: Fetal growth and development. Restrected and accelerated fetal growth.

	Short description: Physiology of fetal growth. Basic pathophysiological events in various types of slowed and accelerated fetal growth. Diagnostic procedures for detecting restricted and accelerated fetal growth as well as procedures for monitoring and completing pregnancy.
	Literature: required and optional
VII.	Title: Physiological changes during pregnancy
	Short description: Get acquainted with the physiological changes of genital and extragenital organs and organic systems in pregnancy, including changes in laboratory findings in normal pregnancy. Physiology of pregnancy and metabolism of nutrients in pregnancy. Endocrinology of pregnancy.
	Literature: required and optional
VIII.	Title: Reproductive physiology-normal menstrual cycle
	Short decription: Neuroendocrinology, hypothalamus, pituitary gland, sex hormones, menstrual cycle physiology, cyclic endometrial changes and follicular development.
	Literature: required and optional
IX.	Title: Antenatal care and monitoring of normal pregnancy
	Short description: Basic principles of antenatal care, number of examinations and diagnostic procedures used to monitor normal pregnancy. Standard lab tests for monitoring of normal pregnancy as well as interpretation of lab findings.
	Literature: required and optional
X.	Title: Diabetes and pregnancy
	Short description: Definition, Screening, Diagnostic criteria, Complications and treatment of Gestational Diabetes. DM type 1/2 and pregnancy-preconception diagnostic treatment, monitoring and treatment, complications.
	Literature: required and optional
XI.	Title: Hypertension in pregnancy
	Short description : Basic characteristics of hypertensive disorders in pregnancy including definition, classification, epidemiology, etiology, pathophysiology, clinical features and treatment.
	Literature: required and optional
XII.	Title: Hereditary diseases and pregnancies, biochemical screening tests, invasive prenatal diagnosis
	Short description: Numerical and structural chromosomal disorders, monofactorial diseases inherited by Mendel's laws, polygenic and multifactorial diseases. Methods and objectives of prenatal diagnosis of fetal chromosomal abnormalities and malformations.
	Literature: required and optional
XIII.	Title: Rh immunization and fetal hydrops. Intrahepatic cholestasis in pregnancy
	Short description: Definition and diagnosis of disorders, specificity of fetal monitoring, clinical relevance and prevention. Fetal hydropsy etiology and pathophysiology and treatment procedures. Definition of intrahepatic cholestasis, etiology, differential diagnosis, treatment and prognosis.
	Literature: required and optional
XIV.	Title: Premature labor. Postterm pregnancy

	Short description: Definition, risk factors, treatment and complications of premature labor. Postterm pregnancy- definition, clinical significance and procedures.
	Literature: required and optional
XV.	Title: Multiple pregnancy. Metabolism and nutrition in pregnancy.
	Short description: Epidemiology, classification and specificity of multiple pregnancy and the birth of twins. Importance of proper diet in pregnancy. Nutrition of overweight and underweight pregnant women.
	Literature: required and optional
XVI.	Title: Newborn
	Short description: Initial care of term newborn. Perinatal asphyxia, pulmonary diseases (transitory tachipnea, meconium aspiration sy, hyaline membrane disease, bronchopulmonary dysplasia, pneumonia), apnea, hypoglycemia, newborn dermatitis, newborn jaundice, congenital bacterial infection.
	Literature: required and optional
XVII.	Title: Bleeding in the second half of pregnancy and during delivery. Blood clotting disorders in pregnancy and puerperium.
	Short description: Causes of late pregnancy bleeding (placenta previa, placental abruption, marginal sinus rupture) and during delivery (uterine rupture) and their treatment. Learn about blood clotting disorders in pregnancy and puerperia, basic mechanisms and therapeutic guidelines
	Literature: required and optional
XVIII.	Title: Urinary tract infections and TORCH during pregnancy. Intraamniotic infections.
	Short description: Diagnosis, treatment and prevention of urinary tract infections in pregnancy and their influence on the course and outcome of pregnancy. Definition, diagnosis, treatment and prevention of TORCH and intraamniotic infections.
	Literature: required and optional
XIX.	Title: The mechanism of normal labor. Fetal surveillance in late pregnancy and during labor
	Short description: Get acquainted with theories about the beginning of delivery, physiological delivery mechanisms including birth factors. Get to know stages of labor. Introduce and be able to interpret all movements during physiological birth in cephalic position. Basic information on methods for assessing fetal well being during pregnancy and delivery.
	Literature: required and optional
XX.	Title: Physiology and pathology of the third and fourth stages of labor. Labor analgesia and anesthesia.
	Short description: Third stage of labor, signs of placental separation, placental examination, fourth stage of labor, complications of third and fourth stages of labor - bleeding, uterine atony, uterus inversion, peripartum hysterectomy, maternal mortality. Physiology of transmitting pain sensations, relieving labor pain, analgesia and anesthesia during delivery and during surgery in pregnancy and delivery.
	Literature: required and optional
XXI.	Title: Puerperium physiology and pathology

	Short description: Physiological processes of puerperium, postparum care, and the most important postpartum complications. Postpartum bleeding, puerperal infections- mastitis, thrombosis and thromboembolism, urinary tract infections; postpartum mental changes and psychiatric disorders - causes, diagnosis and treatment.
	Literature: required and optional
XXII.	Title: Pathology of labor (anomaly of position and presentation, dystocia, c/p disproportion). Obstetrics surgery.
	Short description: Pathology of labor including abnormalities of position and presentation, uterine contraction and birth canal abnormalities (small pelvis, cephalo-pelvic disproportion). Obstetrics surgery: episiotomy, vacuum extraction and forceps delivery, manual placenta removal, uterine exploration, caesarean section.
	Literature: required and optional
XXIII.	Title: Ovarian and fallopian tube cancer
	Short description: Risk factors, ethiopathogenesis, symptoms, diagnosis and treatment. Survival, prognosis and monitoring of patients, quality of life.
	Literature: required and optional
XXIV.	Title: Premalignant and malignant disorders of the vulva and vagina
	Short description: Risk factors, ethiopathogenesis, symptoms, diagnosis and treatment. Survival, prognosis and monitoring of patients, quality of life.
	Literature: required and optional
XXV.	Title: Uterine cancer
	Short description: Risk factors, etiopathogenesis, symptoms, diagnosis and treatment. Survival, prognosis and monitoring of patients, quality of life.
	Literature: required and optional
XXVI.	Title: Premalignant and malignant disorders of the cervix
	Short description: Human papilloma virus. Classification of cervical intraepithelial neoplasia. Procedures for diagnosing and treating premalignant cervical lesions. Epidemiology, spreading pathways, symptoms, diagnosis and cancer staging. Modalities of treatment - surgical treatment, radiotherapy and chemotherapy. Survival, prognosis and monitoring of patients, quality of life. Cervical cancer in pregnancy.
	Literature: required and optional
XXVII.	Title: Abnormal (Dysfunctional) uterine bleeding
	Short description: Pathophysiology of abnormal uterine bleeding. Juvenile uterine bleeding. Diagnosis and treatment. Endometrial biopsy, endometrial ablation, Mirena and hysterectomy.
	Literature: required and optional
XXVIII.	Title: Minimally invasive and major surgical procedures in gynecology, preoperative and postoperative care. Uterine fibroids treatment.
	Short description: Get to know basic surgical principles and operating techiques in gynecology. Preoperative and postoperative care. Hysterectomy indications and techniques.
	Literature: required and optional
XXIX.	Title: Puberty and menarche. Pediatric and adolescent gynecology.

	Short description: Normal female puberty development. Congenital anomalies and abnormal pubertal development. Characteristics, symptoms, diagnostic methods of treatment methods in Pediatric and Adolescent Gynecology.
	Literature: required and optional
XXX.	Title: Miscarriage and recurrent miscarriage. Trophoblastic disease. Ectopic Pregnancy
	Short description: Types of miscarriages, causes, identification of risk factors, clinical features, diagnostic and therapeutic procedures. Classification of gestational trophoblastic disease and its incidence. The origin of complete and partial moles, diagnosis and treatment. Monitoring of patients after molar pregnancy. Diagnosis and classification of gestational trophoblastic neoplasia, treatment. Clinical features of ectopic pregnancy, etiologic factors, symptoms, diagnosis and treatment.
	Literature: required and optional
XXXI.	Title: Family planning. Contraception.
	Short description: Definition and goals of family planning. Family planning methods. Natural methods. Barrier Methods. Chemical contraception. Intrauterine contraception. Hormone contraception. Urgent contraception. Permanent contraception methods. Legislation
	Literature: required and optional
XXXII.	Title: Urinary incontinence. Pelvic floor defects.
	Short description: Definition, clinical features and therapeutic possibilities of pelvic floor defects, descendens and prolapse uterine. Understand the basics of the miction/urination. Incontinence - types of incontinence, diagnosis, treatment. Urinary tract fistulas.
	Literature: required and optional
XXXIII.	Title: Endometriosis
	Short description: Introduce epidemiology and etiology of endometriosis, pathogenesis, pathohistology and disease symptoms. Learn the critical approach to diagnosing and classifying the disease. Understand the importance of endometriosis in human reproduction. Therapeutic options for treating endometriosis.
	Literature: required and optional
XXXIV.	Title: Inflammation of the lower part of the genital tract and pelvic inflammatory disease
	Short description: Introduce the etiology of inflammation of the lower and upper part of the female genital system, pathways and symptoms of the disease. Diagnosis and therapeutic approach. Understand the term chronic pelvic inflammatory disease.
	Literature: required and optional
XXXV.	Title: Perimenopause and Postemenopause
	Short description: Definition, endocrinological and clinical features of perimenopause and postmenopause. Hot wave mechanism. Osteoporosis. Cardiovascular diseases. Hormone replacement therapy, indications and contraindications.
	Literature: required and optional
XXXVI.	Title: Amenorrhea and chronic anovulation

	Short description: Definition of amenorrhea. Classification. Four levels of amenorrhoea disorders. Diagnostic algorithms of individual levels: I - uterus and vagina, II - ovarian, III - pituitary, IV - hypothalamus. Hormone tests for diagnosis of individual disorders. Principles of treatment. PCO syndrome - theories about the causes, hereditary factors, fetal programming. Symptoms and signs of PCOS. Diagnostic criteria. PCOS treatment, treatment risks. Long-term PCOS health risks.
	Literature: required and optional
XXXVII.	Title: Infertility diagnosis and treatment.
	Short description: Infertility definition. Diagnostic procedure. Spermiogram. Determining ovulation. Fallopian tube function testing. Examination of ovarian reserve. Principles of induction of ovulation. Micro-surgical principles of treatment of diseased oviducts. Uterine corrective surgery. Other surgical interventions affecting fertility. Procedures for medical implantation. Program for freezing, storing and storing biological material. The gaming donation program.
	Literature: required and optional

Name of the course	**Otorhinolaryngology and Head and Neck Surgery**			*Code*	
Study programme Cycle	Integrated study program, Medicine			*Year of study*	V
Credits (ECTS):	**7**	*Semester*	X	Number of hours per semester (L+E+ S)	75 (25+40+10)
Status of the course:	Mandatory	*Requirements:*	Pass all fourth year exams	*Comparative conditions:*	/
Access to course:	Fifth year students			*Hours of instruction*:	According to schedule
Course teacher:	Assistant professor Boris Jelavić, MD, PhD				
Consultations:	As agreed with students (by phone and e-mail)				
E-mail address and phone number:	slav.boris@tel.net.ba ; 036 / 336 - 306, - 310; - 157				
Associate teachers	1. Professor Vlado Petric, MD, PhD, the School of Medicine University of Zagreb, the School of Medicine University of Mostar, branch Otorhinolaryngology; 2. Assistant Professor Boris Jelavić, MD, PhD, the School of Medicine University of Mostar, branch Otorhinolaryngology; 3. Assistant Professor Miro Leventić, MD, PhD, the School of Medicine University of Mostar, branch Otorhinolaryngology; 4. Assistant Professor Branko Krišto, MD, PhD, the School of Medicine University of Mostar, branch Otorhinolaryngology;				

	5. Zorana Ivanković, DMD, PhD, Senior Assistant, the School of Medicine University of Mostar, the School of Dental Medicine University of Split, branch Dental medicine; 6. Zdenko Šarac, DMD, PhD, Senior Assistant, the School of Medicine University of Mostar, branch Dental medicine; 7. Sanja Jurišić, DMD, PhD, Assistant, the School of Medicine University of Mostar, branch Dental medicine; 8. Mladen Ćubela, DMD, PhD, Assistant, the School of Medicine University of Mostar, branch Dental medicine; 9. Ervin Knežević, MD, Assistant, the School of Medicine University of Mostar, branch Otorhinolaryngology; 10. Tomislav Sušac, MD, Assistant, the School of Medicine University of Mostar, branch Otorhinolaryngology; 11. Ivona Musa-Leko, DMD, Assistant, the School of Medicine University of Mostar, branch Dental medicine.
Consultations:	As agreed with students (by phone and e-mail)
E-mail address and phone number:	gomila9@hotmail.com; branko.kristo@tel.net.ba; z-sarac@hotmail.com 036 / 336 - 306, - 309, - 157
Course objectives:	The aim of the course is to introduce medical students with diseases of the head and neck.
Learning outcomes (general and specific competences):	<u>General competences:</u> Applying the independent study in a critical and self-critical way of investigating scientific truths. Remembering the personality qualities (team work and personal contribution, interest, active listening and construction of positive relationships with members of the group, ability to defend their attitudes). <u>Specific competences:</u> Understanding the basics of etiopathogenesis, clinical picture, and diagnostics of otorhinolaryngology on the level required for the work of a doctor in primary practice. Applying the use of specific instruments and aids for basic diagnostic procedures to determine the state of the organs of the head and neck dealing with otorhinolaryngology. Understanding the transfer of knowledge, prevention and treatment of diseases in areas of otorhinolaryngology at the level of primary practice, based on the above acquired knowledge and skills. Applying the knowledge on all urgent conditions and applying the ability to independently solve one part of the urgent condition in studied organs of the head and neck, and in particular diseases and injuries in the crossing area of the respiratory and digestive tract. Learning outcomes will be evaluated during classes by continuous assessment (oral, written) and acquired practical skills in exercises (work on ward with patients), discussions in seminars and the final exam (practical, oral and written).

<table>
<tr><td>Syllabus/Course content (in brief):</td><td colspan="4">The teaching on the Otorhinolaryngology and Surgery of the Head and Neck course is conducted through 25 lectures, 11 seminars and 20 exercises.</td></tr>
<tr><td rowspan="3">Type of instruction (mark in bold)</td><td>Lectures</td><td>Exercises</td><td>Seminars</td><td>Independent assignments</td></tr>
<tr><td>Consultations</td><td>Work with mentor</td><td>Field work</td><td>Other</td></tr>
<tr><td colspan="4">Remarks: Classes begin with lectures, followed by seminars and end with exercises. At seminars, the student presents a presentation on a topic or problem from a certain area for which he was assigned the first day of classes. At exercises, the student learns about the instruments and devices used to diagnose and treat diseases that are in the domain of the course. The students first learn how to use these tools on each other, and afterwards use them to examine the patients. In practices and offices of the Polyclinic and hospital infirmaries, the student assist the specialist or independently performs diagnostic procedures or therapeutic interventions with the supervision and assistance from the specialist. In operating rooms, the students is acquainted with materials, instruments, devices and procedures that are specific to surgical branches that make up this course. The students monitor and assist on operations of the head and neck, work independently on primary treatment of less regular wounds with specialist supervision.</td></tr>
<tr><td>Student responsibilities</td><td colspan="4">Attendance and active participation in the teaching process; seminars; practical work with patients in practices, offices, infirmaries and operating rooms; preliminary exam; final exam.
The students will be screened and evaluated on the basis of:
• Active participation in seminars and exercises,
• Topic or problem presentation in seminars,
• Analysis of teaching texts, developing their own critical thinking about the material and the way of presenting and defending their attitude,
• Cooperation in small groups on practical work in treatment of patients and patient materials during classes,
• Student’s knowledge on practical, written and oral of the final exam.</td></tr>
<tr><td rowspan="3">Screening and evaluation of students (mark in bold)</td><td>Class attendance</td><td>Class participation</td><td>Seminar work</td><td>Practical work</td></tr>
<tr><td>Oral exam</td><td>Written exam</td><td>Continuous assessment</td><td>Essay</td></tr>
<tr><td></td><td></td><td></td><td></td></tr>
<tr><td colspan="5">Detailed evaluation within the European Credit Transfer System</td></tr>
<tr><td>STUDENT RESPONSIBILITES</td><td>HOURS (ESTIMATE)</td><td colspan="2">SHARE IN ECTS</td><td>SHARE IN GRADE</td></tr>
</table>

Class attendance and participation	15	0.5	0%
Seminar work	25	1	0%
Practical part of the exam (independent performance of skills + written exam from otorhinolaryngology propedeutics)	60	2	25%
Oral part of the exam	100	3.5	75%

Further clarification:
The Exam consists of a practical part and an oral part.
Students who regularly attended the classes can take the exam. **Practical part** of the exam (25% of the final grade from ENT) consists of two parts: 1) Independent performance of skills acquired on exercises and interpretation of patients findings (radiologic, laboratory, pathohistological) – regular attendance on exercises and passing the practical part of the exam are conditions to take the final oral exam. 2) Written test of 20 questions relating to the technique of performing skills in the field of otorhinolaryngologist, analysis of patient findings and postoperative care of patients after otorhinolaryngological surgery. The assessment criteria of the written exam: one correct answer carries one point, the total percentage of correct answers needed for a positive assessment is 55% [11-13 correct answers = sufficient (2); 14 – 15 = good (3); 16 – 18 = very good (4); 19 – 20 = excellent (5)]. The final grade from the practical part is the sum of = skills (75%) + written test (25%). The practical part of the exam is recognized during the current academic year. **Oral part** of the exam (75% of the final grade from ENT) consists of 4 questions (1. Otology, 2. Rhinology, 3. Pharyngology, 4. Laryngology & Head-neck surgery). Students draw cards with questions. Final grade is the sum of = practical part (25%) + oral part (75%).

Required literature:	**Lit1.** Bumber Ž, Katić V, Nikšić-Ivančić M, Pegan B, Petric V, Šprem N et al. Otorinolaringologija. Zagreb: Medicinska biblioteka, Naklada Ljevak; 2004. **Lit2.** Petric V, Jelavić B. Bolesti sluznica gornjih dišnih puteva. U: Šimić D, ed. Bolesti sluznica – multidisciplinarni pristup. Zagreb: Medicinska naklada; 2011. 23-44. **Lit3.** Ante Ivanković: Stomatologija za medicinare. FRAM, Mostar, 2004. **Lit4.** Berislav Topić: Klinička slika, dijagnoza i terapija bolesti oralne sluznice. Grafotisak, Grude, 2004.
Optional literature:	**Lit5**. Tambić Andrašević A, Baudoin T, Vukelić D, Mimica Matanović S, Bejuk D, Puževski D et al. Smjernice ISKRA za grlobolju. Liječ Vjesn 2009; 131:181-91. **Lit6**. 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.
Additional information about the course	Methods of monitoring the quality of the teaching process: - Student survey (survey of the Medical School Mostar and survey of the Department of Diseases of the head and neck) - Student-teacher quality control report

	- Exam pass rates and results - Teaching quality office report - Self-evaluation and external evaluation (visits of quality control teams)

ANNEX: Calendar of classes

Number and identification of teaching unit (L-lecture, S-seminary, E-exercise):	**TOPICS AND LITERATURE**
ENT– L1	Title: Introduction to ENT & Head and neck surgery. A brief anatomy of the ear.
	Literature: required and optional
ENT – L2	Title: Physiology of hearing. Assessment of hearing.
	Literature: required and optional
ENT – L3	Title: Hearing impairment. Tinnitus.
	Literature: required and optional
ENT – L4	Title: Physiology of vestibular system. Assessment of vestibular system. Vestibular disorders.
	Literature: required and optional
ENT – L5	Title: Meniere's disease. Vestibular neuronitis. Ear barotrauma.
	Literature: required and optional
ENT – L6	Title: Inflammation of external ear. Inflammation of middle ear. Inflammation of inner ear.
	Literature: required and optional
ENT – L7	Title: Complications of otitis. Tumors of the ear and temporal bonei.
	Literature: required and optional
ENT – L8	Title: Ear surgery. Cochlear implants.
	Literature: required and optional
ENT – L9	Title: Nose and paranasal sinusesi: a brief embriology, anatomy, physiology. Deformations of the nasal septum and pyramid. Septoplasty, rinoplasty.
	Literature: required and optional
ENT – L10	Title: Physical 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.
	Literature: required and optional
ENT – L11	Title: Injuries of the nose. Foreign bodies in the nose. Inflammation of nasal skin.
	Literature: required and optional
ENT – L12	Title: Epistaxis. Infectious rhinitis. Non infectious rhinitis.
	Literature: required and optional
ENT – L13	Title: Acute rhinosinusitis. Chronic rhinosinusitis. Nasal polypi. Antrochoanal polyp.
	Literature: required and optional
ENT – L14	Title: A brief anatomy of the pharynx. Tonsillar problem. Adenoids.
	Literature: required and optional

ENT – L15	Title: Adenotomy, tonsillectomy: indications, basic principles of surgery.
	Literature: required and optional
ENT – L16	Title: Acute and chronic inflammation of the pharynx and larynx.
	Literature: required and optional
ENT – L17	Title: Benign and malignant tumors of the pharynx. Benign tumors of the larynx.
	Literature: required and optional
ENT – L18	Title: Diseases of major salivary glands (sialoadenitis, sialolithiasis, tumors). Basic principles of surgical treatment.
	Literature: required and optional
ENT – L19	Title: The crossing of the respiratory and the digestive tracts. Benign lesions of the vocal cords. Vocal cord paralysis. Injuries and stenosis of the larynx.
	Literature: required and optional
ENT – L20	Title: Laryngopharyngeal reflux. Foreign body in the larynx and trachea. Foreign body in the bronchus and oesophagus.
	Literature: required and optional
ENT – L21	Title: Malignant tumors of hypopharynx and larynx. Basic principles of surgical treatment. Neck dissections. Voice rehabilitation following total laryngectomy.
	Literature: required and optional
ENT – L22	Title: A neck lump. Neck cyst. Head and neck lymphoma. Head and neck hemangioma.
	Literature: required and optional
ENT – L23	Title: Deep neck space infections. Metastatic neck tumors of unknown primary origin.
	Literature: required and optional
ENT – L24	Title: Surgery of the thyroid gland.
	Literature: required and optional
ENT – L25	Title: Surgery of the parathyroid gland.
	Literature: required and optional
ENT – S1	Title: Early detection of profound hearing loss and deafness.
	Literature: required and optional
ENT – S2	Title: Emergency conditions in rhinology I. ARIA guidelines 2016.
	Literature: required and optional
ENT – S3	Title: Emergency conditions in rhinology II. EP3OS- European Position Paper on the Primary Care Diagnosis and Management of Rhinosinusitis and Nasal Polyps.
	Literature: required and optional
ENT – S4	Title: Inspiratory stridor: differential diagnosis, treatment. Coniotomy, tracheostomy.
	Literature: required and optional
ENT – S5	Title: ISKRA guidelines on sore throat I.
	Literature: required and optional
ENT – S6	Title: ISKRA guidelines on sore throat II.

	Literature: required and optional
ENT – S7	Title: Hemorrhage in otorhinolaryngology.
	Literature: required and optional
ENT – S8	Title: Foreign bodies in otorhinolaryngology..
	Literature: required and optional
ENT – S9	Title: Endoscopy in otorhinolaryngology. Surgical treatment of snoring.
	Literature: required and optional
ENT – S10	Title: Division of the Neck into Levels and Sublevels (according to Memorial Sloan-Kettering Cancer Center).
	Literature: required and optional
ENT – S11	Title: Esthetic surgery in otorhinolaryngology: auriculoplasty, rhytidectomy, blepharoplasty.
	Literature: required and optional
ENT – E1	Title: ENT working place. Use of a head mirror.
	Literature: required and optional
ENT – E2	Title: Instruments for head and neck examination.
	Literature: required and optional
ENT – E3	Title: Otoscopy. Ear toilet procedure.
	Literature: required and optional
ENT – E4	Title: Anterior rhinoscopy.
	Literature: required and optional
ENT – E5	Title: Posterior rhinoscopy. Epistaxis: instruments and materials for anterior and posterior nasal packing.
	Literature: required and optional
ENT – E6	Title: Oropharyngoscopy.
	Literature: required and optional
ENT – E7	Title: Indirect laryngoscopy procedure.
	Literature: required and optional
ENT – E8	Title: Anamnesis in otology, work in he ENT office. (2 hours)
	Literature: required and optional
ENT – E9	Title: Anamnesis in rhinology, work in he ENT office. (2 hours)
	Literature: required and optional
ENT – E10	Title: Anamnesis in pharyngology, work in he ENT office. (2 hours)
	Literature: required and optional
ENT – E11	Title: Anamnesis in laryngology, work in he ENT office. (2 hours)
	Literature: required and optional
ENT – E12	Title: Acumetry. Hearing aids. Legal rights of hearing-impaired patients.
	Literature: required and optional
ENT – E13	Title: Audiology Unit. Pure tone audiometry. Tympanometry. Early detection of deafness.
	Literature: required and optional
ENT – E14	Title: Vestibulology Unit. Vestibulometry (caloric test, rotational test).
	Literature: required and optional

ENT – E15	Title: Unit for ENT endoscopy. Rigid and flexible endoscopes in ENT. Otomicroscopy.
	Literature: required and optional
ENT – E16	Title: Work in the ENT ward and Wound Care Unit. (3 hours)
	Literature: required and optional
ENT – E17	Title: Tracheal cannula: types, toilet, change. Care of patient with tracheostomy tube.
	Literature: required and optional
ENT – E18	Title: Imaging in ENT: Ultrasound, X-rays, CT, MRI. A presentation of normal and pathologic radiologic findings.
	Literature: required and optional
ENT – E19	Title: Specificities of the ENT operating theater. Equipment for microlaryngoscopy, rigid oesophagoscopy, and tracheobronchoscopy. Work in the ENT operating theater. (5 hours)
	Literature: required and optional
ENT – E20	Title: Practical skills in ENT: student performs examination by itself. (5 hours)
	Literature: required and optional

Name of the course	**Maxillofacial Surgery**			*Code*	
Study programme Cycle	Integrated study program, Medicine			*Year of study*	V
Credits (ECTS):	**1**	*Semester*	X	Number of hours per semester	20 (6+7+7)
Status of the course:	Mandatory	*Requirements:*	Pass all fourth year exams	*Comparative conditions:*	/
Access to course:	Fifth year students			*Hours of instruction*:	According to schedule
Course teacher:	Assistant professor Mario Jurić, MD, PhD				
Consultations:	As agreed with students (by phone and e-mail)				
E-mail address and phone number:	juricdr@gmail.com				
Associate teachers	1. Associate Professor Vedran Uglešić, MD, PhD, the School of Dental Medicine University of Zagreb, the School of Medicine University of Mostar, branch Maxillofacial surgery; 2. Associate Professor Predrag Knežević, MD, PhD, the School of Dental Medicine University of Zagreb, the School of Medicine University of Mostar, branch Maxillofacial surgery; 3. Assistant Professor Mario Jurić, MD, PhD, the School of Medicine University of Mostar, branch Maxillofacial surgery;				

	4. Assistant Professor Josip Novaković, MD, PhD, the School of Medicine University of Mostar, branch Maxillofacial surgery; 5. Mario Kordić, MD, MSc, Senior Assistant, the School of Medicine University of Mostar, branch Maxillofacial surgery; 6. Goran Šimić, MD, MSc, Senior Assistant, the School of Medicine University of Mostar, branch Maxillofacial surgery;			
Consultations:	As agreed with students (by phone and e-mail)			
E-mail address and phone number:				
Course objectives:	The aim of the course is to introduce medical students with diseases of the head and neck in the field of Maxillofacial surgery.			
Learning outcomes (general and specific competences):	<u>General competences:</u> Applying the independent study in a critical and self-critical way of investigating scientific truths. Remembering the personality qualities (team work and personal contribution, interest, active listening and construction of positive relationships with members of the group, ability to defend their attitudes). <u>Specific competences:</u> Understanding the basics of etiopathogenesis, clinical picture, and diagnostics of maxillofacial surgery at the level required for the work of a doctor in primary practice. Applying the use of specific instruments and aids for basic diagnostic procedures to determine the state of the organs of the head and neck dealing with maxillofacial surgery. Understanding the transfer of knowledge, prevention and treatment of diseases in areas of maxillofacial surgery at the level of primary practice, based on the above acquired knowledge and skills. Learning outcomes will be evaluated during classes by continuous assessment (oral, written) and acquired practical skills in exercises (work on ward with patients), discussions in seminars and the final exam (practical, oral and written).			
Syllabus/Course content (in brief):	The teaching on Maxillofacial Surgery course is conducted through 8 thematic titles during lectures and 6 titles during seminars and exercises.			
Type of instruction (mark in bold)	**Lectures**	**Exercises**	**Seminars**	**Independent assignments**
	Consultations	Work with mentor	Field work	Other
	Remarks: Classes begin with lectures, followed by seminars and end with exercises. At seminars, the student presents a presentation on a topic or problem from a certain area for which he was assigned the first day of classes. At exercises, the student learns about the instruments and devices used to diagnose and treat diseases that are in the domain of the course. The students first learn how to use these tools on each other, and			

	afterwards use them 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 from the specialist. In operating rooms, the students is acquainted with materials, instruments, devices and procedures that are specific to maxillofacial surgery.
Student responsibilities	Attendance and active participation in the teaching process; seminars; practical work with patients in practices, offices, infirmaries and operating rooms; preliminary exam; final exam. The students will be screened and evaluated on the basis of: • Active participation in seminars and exercises, • Topic or problem presentation in seminars, • Analysis of teaching texts, developing their own critical thinking about the material and the way of presenting and defending their attitude, • Cooperation in small groups on practical work in treatment of patients and patient materials during classes, • Student's knowledge on practical, written and oral of the final exam.

Screening and evaluation of students (mark in bold)				
	Class attendance	**Class participation**	**Seminar work**	**Practical work**
	Oral exam	Written exam	**Continuous assessment**	Essay

Detailed evaluation within the European Credit Transfer System

STUDENT RESPONSIBILITES	**HOURS (ESTIMATE)**	**SHARE IN ECTS**	**SHARE IN GRADE**
Class attendance and participation	5	0.1	0%
Seminar work	5	0.1	0%
Practical part of the exam (independent performance of skills + written exam from otorhinolaryngology propedeutics)	10	0.3	25%
Oral part of the exam	20	0.5	75%

Further clarification:
Exam from maxillofacial surgery (MFS) consists of a practical and an oral part.
Students who regularly attended the classes can take the exam. Practical part of the exam (25 % of the final grade from MFS) consists of two parts: 1) Independent performance of skills acquired on exercises and interpretation of patients findings (radiologic, laboratory, pathohistological) – regular attendance on exercises and passing the practical part of the exam

are conditions to take the final oral exam. 2) Written test of 20 questions relating to the technique of performing skills in the field of a maxillofacial surgeon, analysis of patient findings and postoperative care of patients after maxillofacial surgery. The assessment criteria of the written exam: one correct answer carries one point, the total percentage of correct answers needed for a positive assessment is 55% [11-13 correct answers = sufficient (2); 14 – 15 = good (3); 16 – 18 = very good (4); 19 – 20 = excellent (5)]. The final grade from the practical part is the sum of = skills (75%) + written test (25%). The practical part of the exam is recognized during the current academic year. Oral part of the exam (75 % of the final grade from MFS) consists of 4 questions (1. Injuries of jaws and facial bones, 2. Deformations of face and jaws, 3. Head and neck tumors, 4. Inflammatory diseases of face, jaws, and neck). Students draw cards with questions. Final grade from MFS: Final grade is the sum of = practical part (25%) + oral part (75%).	
Required literature:	**Lit1.** Bagatin M, Virag M. Maksilofacijalna kirurgija. Zagreb: Školska knjiga; 1991. **Lit2.** Petric V, Jelavić B. Bolesti sluznica gornjih dišnih puteva. U: Šimić D, ed. Bolesti sluznica – multidisciplinarni pristup. Zagreb: Medicinska naklada; 2011. 23-44.
Optional literature:	
Additional information about the course	Methods of monitoring the quality of the teaching process: - Student survey (survey of the Medical School Mostar and survey of the Department of Diseases of the head and neck) - Student-teacher quality control report - Exam pass rates and results - Teaching quality office report - Self-evaluation and external evaluation (visits of quality control teams)

ANNEX: Calendar of classes

Number and identification of teaching unit (L-lecture, S-seminary, E-exercise):	**TOPICS AND LITERATURE**
MFS – L1	Title: Inflammation of the maxillofacial region
	Literature: Lit1
MFS – L2	Title: Trauma and injury to the face and jaws I
	Literature: Lit1
MFS – L3	Title: Trauma and injury to the face and jaws II
	Literature: Lit1
MFS – L4	Title: Head and neck tumors I
	Literature: Lit1
MFS – L5	Title: Head and neck tumors II
	Literature: Lit1
MFS – L6	Title: Malformations of the face
	Literature: Lit1
MFS – L7	Title: Deformations of the face and jaws
	Literature: Lit1

MFS – L8	Title: Reconstructive and esthetic surgery of the head and neck
	Literature: Lit1
MFS – S1	Title: Odontogenic inflammations: principles of treatment
	Literature: Lit1
MFS – S2	Title: Osteosinthesis of mandible and maxilla: basic principles of treatment
	Literature: Lit1
MFS – S3	Title: Neck dissection classification
	Literature: Lit1
MFS – S4	Title: Lip and palate reconstruction
	Literature: Lit1
MFS – S5	Title: Preoperative planning in ortognathic surgery
	Literature: Lit1
MFS – S6	Title: Skin flaps classification
	Literature: Lit1
MFS – E1	Title: Clinical examination of maxillofacial patients
	Literature: Lit1
MFS – E2	Title: Wound suturing on models
	Literature: Lit1
MFS – E3	Title: Intermaxillary fixation and osteosinthesis in maxillofacial region
	Literature: Lit1
MFS – E4	Title: Local flaps in the head and neck
	Literature: Lit1
MFS – E5	Title: Postoperative care of maxillofacial patients
	Literature: Lit1
MFS – E6	Title: Facial bones fractures radiology: Analysis of pre- and postopeartive radiologic findings
	Literature: Lit1

Name of the course	**Ophthalmology**			**Code**	
Type of study program Cycle	Integrated study program, Medicine			**Year of study**	V
Credits (ECTS) :	**5,5**	*Semester*	X	Number of hours per semester (l+e+s)	65 (16+35+14)
Status of the course:	Mandatory	*Preconditions:*	Passed all exams of the 4th year	*Comparative conditions:*	
Access to course:	Fifth year students			*Hours of instructions*:	According to schedule

Course teacher:	Assistant professor Antonio Sesar, MD, PhD
Consultations:	Per agreement
E-mail address and phone number:	antoniosesar@yahoo.com / +38763345500
Associate teachers	Professor Zdravko Mandić, MD, PhD Assistant professor Dean Šarić, MD, PhD Assistant professor Irena Sesar, MD, PhD Associate professor Ivan Ćavar, MD, PhD Darija Jurišić, MD, PhD Anita Pušić Sesar, MD, MSc Ivka Čović, MD, MSc Kristina Kevilj, MD, MSc
Consultations:	As agreed
E-mail address and phone number:	

The aims of the course:	The aims of this course are: getting acquainted with the structure and function of a healthy eye, recognizing basic eye disorders and diseases, getting acquainted with the basics of clinical examination and diagnosis, as well as the underlying principles of an eye as an organ.
Learning outcomes (general and specific competences):	General outcomes: • Analyzing and remembering the symptoms of eye diseases. • Evaluation and synthesis of adopted knowledge in ophthalmology in addition to previously acquired knowledge. • Applying the ability to participate in interdisciplinary teams and applying the knowledge in clinical practice. Specific outcomes: • Remembering the specifics of the ocular anamnesis. • Applying a basic ophthalmologic examination. • Remembering the type and degree of ocular pathology and diagnose of urgent ophthalmological conditions. • Understanding and applying the basic and specific diagnostic tests as well as the possibilities of modern treatment of various ophthalmic diseases. • Analyzing the diagnostic tests and treatment possibilities in a reasoned manner.
Course content (Syllabus):	Class is consisted of 15 teaching units. Each unit consists of 1-3 hours of lectures, 1 hour of seminars with knowledge-testing and assessments and 2-4 hours of practice with assistants for the practical application of acquired knowledge through the examination of patients in the outpatient clinic.

Format of instruction (mark in bold)	**Lectures**	**Exercises**	**Seminars**	Independent assignments
	Consultations	Work with mentor	Field work	Other
	Notes: Class from each unit begins with lectures. At seminars, students actively participate and critically discuss the thematic set for			

	which they have to be prepared in advance. In the exercises students learn about the basics of ophthalmologic examination, analysis of symptoms and recognition of specific ocular pathology.			
Student responsibilities	Students are required to attend classes, it is allowed to miss 20% of class. They have to be prepared for an active participation in seminars. The prerequisite for the oral exam is a pre-passed written exam			
Screening student work (mark in bold)	**Class attendance**	**Class participations**	Seminar essay	Practical training
	Oral exam	**Written exam**	Continuous assessment	Essay

Detailed evaluation within a *European system of points*

STUDENTS RESPONSIBILITIES	**HOURS**	**PROPORTIONS OF ECTS CREDITS**	**PROPORTIONS OF MARK**
Class attendance and participations	30	1	0%
Written exam	55	2	50%
Oral exam	75	2,5	50%

Additional clarifications:
The exam consists of a written and oral part. Written exam consists of a total of 50 questions ("multiple choice"), and the grade is obtained in accordance with the current Study Regulations. Both parts of the exam form an equal share in the final grade (by 50%). In case that student passes a written exam and does not satisfy at the oral exam, the passed written part is admitted for the entire current academic year, and each student take the oral part of the exam on each subsequent term. The list of oral exam questions is provided at the beginning of the course.
According to the Book of Rules, 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 (inadequate)

Required literature:	Mandic et al,Ophthalmology, Medicinska naklada, Zagreb, 2014.
Optional literature:	Bušić et al. Seminaria of Ophthalmologica, Cerovski, Osijek, 2011
Additional information about the course	Monitoring methods of teaching quality: - student questionnaire - quality analysis by students and teachers - exam results analysis - report of the office for teaching quality - external evaluation (visit of team for quality control)

Annexes: calendar classes

The number of teaching units	**TOPICS AND LITERATURE**
I.	Title: History, introduction to ophthalmology, anatomy, embryology and physiology of the eye.
	Short description: ophthalmological terminology, texture and function of the eye
	Literature: mandatory and supplementary
II.	Title: General symptomatology and clinical review in ophthalmology. Specifications in ophthalmology
	Short Description: Symptoms of eye disease, basics of vlinical examination, ophthalmology diagnosis
	Literature: mandatory and supplementary
III.	Title: Spine, coupler. Keratitis, conjunctivitis. Differential diagnosis of the red eye. Transplantation of the cornea
	Short Description: Material and function, corneal and connective tissue disorders, diagnosis and treatment, corneal transplantation
	Literature: mandatory and supplementary
IV.	Title: Heavy, suction machine. Dry eye, narrow eye.
	Brief Description: Material and function, eyelid and dehydal disorders, diagnosis and treatment
	Literature: mandatory and supplementary
V.	Title: Orbit. Orbital cellulitis. Dystroid ophthalmopathy.
	Short Description: The material and function, orbit diseases, diagnosis and treatment
	Literature: mandatory and supplementary
VI.	Title: Lens, cataract surgery.
	Short description: Lens composition and function, cataracts, cataract surgery
	Literature: mandatory and supplementary
VII.	Title: Eye refraction, refractive anomalies, refractive surgery. Contact lenses
	Short Description: Refractive basics, shortness, lateral vision, astigmatism, spectrometric and contact lens correction, refractive surgery
	Literature: mandatory and supplementary
VIII.	Title: Glaucoma. Treatment of glaucoma. Acute angular glaucoma.
	Short Description: Pathophysiology and glaucoma classification, specific diagnosis, medicaments, laser and surgery
	Literature: mandatory and supplementary
IX.	Title: Strabology, ophthalmology for children.
	Short description: types of strabismus, weakness and treatment, peculiarities of ocular pathology in children's age
	Literature: compulsory and supplementary
X.	Title: Retina 1 (vascular and degenerative diseases).
	Short Description: Vascular and degenerative rash diseases, retinal ablation, symptoms, diagnosis and treatment

	Literature: mandatory and supplementary
XI.	Title: Retina 2 (macula diseases), vitreus.
	Short description: macular diseases, symptoms, diagnosis and treatment, intravitreal drug use, vitreous disease
	Literature: mandatory and supplementary
XII.	Title: Uvea. Uveitis, endophthalmitis. Particularity of the immune reaction of the eye.
	Short Description: Material and function, uvea diseases, diagnosis and treatment
	Literature: mandatory and supplementary
XIII.	Title: Neuroophthalmology. Optical neuritis. Stopwatch.
	Short Description: Nervus ophthalmicus diseases, diagnosis and treatment, ocular manifestation of neurological disorders
	Literature: mandatory and supplementary
XIV.	Title: Eye injuries, emergency Situations in ophthalmology.
	Short description: open and closed eye injuries, procedure in emergency ophthalmologic conditions
	Literature: mandatory and supplementary
XV.	Title: Eye cancer.
	Short Description: Eyelid and joints, intrabulbaric tumors, orbital tumors, diagnosis and treatment
	Literature: mandatory and supplementary
XVI.	Title: Overview of ophthalmology surgery
	Short description: phacoemulsification, trabeculactomy, vitreoretinal surgery, ophthalmologic and reconstructive surgery, enucleation, evisceration, exertion, dakriocistorinostomy, strbismus surgery
	Literature: mandatory and supplementary
XVII.	Title: Pharmacotherapy in ophthalmology
	Short description: types of ophthalmic drugs, peculiarities of the method of application and ophthalmic drugs
	Literature: compulsory and supplementary

Course name	**Orthopaedics and Traumatology**			**Course code**	
Study program *Study cycle*	Integrated study program, Medicine			**Year of study**	V
ECTS credits:	**5**	*Semester*	X.	Teaching hours per semester (l+e+s)	75 (20+40+15)
Course status:	mandatory	*Preconditions:*	Passed all exams of the 4th year	*Comparative conditions:*	
Access to the course:	Fifth year medical students			*Hours of instructions*:	According to schedule

Head of the course:	Professor Zdenko Ostojić, MD, PhD		
Consultations:	As agreed		
E-mail and phone no.:	zdenkoostojic54@gmail.com		
Associate teachers	Professor Božo Ljubić, MD, PhD Professor Ljerka Ostojić, MD, PhD Assistant professor Jerko Prlić, MD, PhD Assistant professor Marko Ostojić, MD, PhD Goran Moro, MD, PhD Kristijan Juka, MD, PhD Maki Grle, MD, PhD Alen Latinčić, MD		
Consultations:	As agreed		
E-mail and phone no.:			
The aims of the course:	The aims of the course are: To enable students to acquire knowledge about congenital and developmental diseases of the locomotor system, inflammatory and degenerative diseases, circulatory diseases, tumors, injuries, amputations and prosthetics, joint arthroplasty. Orthopedic surgery classes enable students to acquire the knowledge and skills required to manage orthopedic disorders in scope of a primary health care physician. 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 including clinical		
Learning outcomes (general and specific competences):	General outcomes: • Applying the independent learning through the study in the way of critical and self-critical questioning of scientific truth. • Remembering the possesion of personal qualities such as teamwork and personal contribution to it, attentiveness, active listening and positive teambuilding. Specific outcomes: • Understanding the basics of orthopedic diseases as well as injuries, ethiology, clinical features, diagnostics and treatment of orthopedic patients. • Applying the most important skills in diagnostic and therapeutic procedures. • Applying the preventive measures in a timely manner. The outcomes are in line with the Catalogue of Knowledge and Clinical Skills. Performance will be evaluated through continuous tests, active forms of studying during lectures and seminars, and in final exam.		
Syllabus / curriculum contents (short):	The course consists of everyday lectures, seminars and exercises. The same topics with a different approach are covered in lectures and seminars. A seminar is an interactive method of teaching. Students apply the acquired knowledge during exercises.		

Methods of teaching (mark in bold)	**Lectures**	**Exercises**	**Seminars**	Individual assignments
	Consulstations	Mentoring	Field work	Other
	Remarks:			
Student responsibilities	Students are required to attend classes on schedule. Any absence has to be compensated with colloquium. Running late for a class will be treated the same as missing it. Colloquium is a short oral exam in which student has to demonstrate basic knowledge of the material. During the exercises students are required to wear clean and ironed white coats. Students with long hair are required to tie it back in a ponytail. Nails have to be neatly trimmed. Students are required to study the seminar materials in advance.			
Monitoring and assessment (mark in bold)	Class attendance	Class participations	Seminar assignment	Practical training
	Oral exam	**Written exam**	**Continuous assessment**	Essay

Detailed evaluation within a *European point system*

STUDENTS RESPONSIBILITIES	**HOURS (APPROX.)**	**ECTS CONTRIBUTION**	**MARK CONTRIBUTION**
Class attendance and participation	30	1	0%
Seminar essay	0	0	0%
Colloquium (2) or Written exam	60	2	50%
Oral exam	60	2	50%

Further clarification:
The exam in Orthopedic surgery and traumatology consists of three parts: written, practical and oral exam.
Written exam consists of 40 multiple-choice questions and 10 diagnosis in latin.
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 follows the passed 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 acheived in written and oral exam. Students are able to take the exam in regular summer and autumn exam periods.	
Required literature:	Pećina M. et al.: Ortopedija, Medicinska biblioteka, Zagreb, 2004 Smiljanić B: Traumatologija, Školska knjiga, Zagreb
Optional literature:	Canale et al: Campbell's Operative Orthopaedics, Elsevier, 2016
Additional information about the course	Monitoring methods of teaching quality: - student questionnaire - quality analysis by students and teachers - exam results analysis - report of the office for teaching quality - external evaluation (visit of team for quality control)
Teaching unit number	**TOPICS AND LITERATURE**
I.	Title: 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.
	Short description: Class organization, orthopedic service organization, general terms.
	Literature: required and optional
II.	Title: General disorders of the skeletal system. Bone displasions – achondroplasia, mucopolysaccharidosis, osteogenesis imperfecta, arthrogryposis, metabolic and hormonal diseases – osteoporosis, Paget disease, gout, rickets.
	Short description: Clinical features, diagnostics and management.
	Literature: required and optional
III.	Title: Juvenile osteochondrosis, bone circulation disorders and epiphyseal/apophyseal ossification disorders. Postural deformations. Clinical cases – juvenile osteochondrosis, aseptic femur head necrosis
	Short description: Clinical features, diagnostics and management.
	Literature: required and optional
IV.	Title: Bones and joints of the lower limb – pelvis and hip. Degenerative joint diseases. Clinical cases – degenerative joint diseases, osteoarthritis, intervertebral disc prolapse.
	Short description: Definition, ethiology, clinical features, diagnostics and management.
	Literature: required and optional
V.	Title: Inflammatory diseases of the skeletal system – specific and non-specific osteomyelitis, infectious arthritis, rheumatoid arthritis. Arthropathies. Clinical cases – osteomyelitis, Bechterew disease, RA.

	Short description: Definition, ethiology, clinical features, diagnostics and management.
	Literature: required and optional
VI.	Title: Normal and disturbed bone healing (calyx, pseudoarthrosis, bone bank). Orthopedic supplies. Disability assessment.
	Short description: Definition, ethiology, clinical features, diagnostics and management.
	Literature: required and optional
VII.	Title: Scoliosis. Orthopedic technique. Congenital hip dislocation – diagnosis and management. Plaster – conservative treatment. Tumors of the musculosceletal system. Palsies. Sympathetic reflex dystrophy – Sudeck disease.
	Short description: Definition, ethiology, clinical features, diagnostics and management.
	Literature: required and optional
VIII.	Title: Vertebral column – congenital and developmental disorders. Thorax.
	Short description: Definition, ethiology, clinical features, diagnostics and management.
	Literature: required and optional
IX.	Title: Shoulder girdle. Arm.
	Short description: Diseases and injuries.
	Literature: required and optional
X.	Title: Pelvic girdle. Hip and upper leg – allo-arthroplasty, epiphyseolisis capitis femoris, Legg-Calve-Perthes disease. Knee.
	Short description: Diseases and injuries. Definition, ethiology, clinical features, diagnostics and management.
	Literature: required and optional
XI.	Title: Lower leg, foot. Canalicular syndromes. Immobilization in bone fractures. Osteosynthetic materials. Fracture reduction. Monitoring of treatement of fractures and luxations.
	Short description: Diseases and injuries. Treatment methods.
	Literature: required and optional
XII.	Title: Introduction – approach to the injured person – LMS injuries in general. Basic principles and methods of treatment of bone fractures and joint luxations. Clinical cases – surgical and conservative management of bone fractures and joint luxations.
	Short description: Procedures in traumatology.
	Literature: required and optional
XIII.	Title: LMS injuries in children. Vertebral column, thorax and pelvis injuries. Clinical features of LMS injuries in children.

	Short description: Clinical features, diagnostics and treatments.
	Literature: required and optional
XIV.	Title: Upper limb fractures. Pseudoarthrosis.
	Short description: Definition, clinical features, diagnostics and treatment.
	Literature: required and optional
XV.	Title: Upper limb fractures.
	Short description: Procedures.
	Literature: required and optional

Course name	**Physical and Rehabilitation Medicine**			**Course code**	
Study program *Study cycle*	Integrated study program, Medicine			**Year of study**	V
ECTS credits:	**2**	*Semester*	X.	Teaching hours per semester (l+e+s)	40 (10+20+10)
Course status:	mandatory	*Preconditions:*	Passed all exams of the 4th year	*Comparative conditions:*	
Access to the course:	Fifth year students			*Hours of instructions*:	According to schedule
Head of the course:					
Consultations:	As agreed				
E-mail and phone no.:					
Associate teachers	Assistant professor Mladenka Naletilić, MD, PhD Assistant professor Vesna Damjanović, MD, PhD Professor Ljerka Ostojić, MD, PhD Jelena Soldo, MD, MSc Meliha Ćeremida Dragišić, MD, MSc				
Consultations:	As agreed				
E-mail and phone no.:					
The aims of the course:	The aims of the course are: Physical medicine and rehabilitation classes enable students to master the basic methods of thermo-, electro-, hydro-, and kinesiotherapy as a part of multidisciplinary approach in healing acute and chronic inflammatory and degenerative diseases. Students will get to know the problems of complex principles of habilitation/rehabilitation of children with neuromotor impairment as well as the fundamentals of basic kinesiotherapy methods in early age.				
Learning outcomes (general and specific competences):	General outcomes: • Applying the independent learning through the study in the way of critical and self-critical questioning of scientific truth. • Remembering the possesion of personal qualities such as				

	teamwork and personal contribution to it, attentiveness, active listening and positive teambuilding. Specific outcomes: • Understanding the diagnostics, treatment, rehabilitation and resocialisation of patients with diseases and injuries of the locomotor system in scope of a primary care physician. • Applying the preventive measures in a timely manner. The outcomes are in line with the Catalogue of Knowledge and Clinical Skills. Performance will be evaluated through continuous tests, active forms of studying during lectures and seminars, and in final exam.			
Syllabus / curriculum contents (short):	The course consists of everyday lectures, seminars and exercises. The same topics with a different approach are covered in lectures and seminars. A seminar is an interactive method of teaching. Students apply the acquired knowledge during exercises.			
Methods of teaching (mark in bold)	**Lectures**	**Exercises**	**Seminars**	Individual assignments
	Consulstations	Mentoring	Field work	Other
	Remarks:			
Student responsibilities	Students are required to attend classes on schedule. Any absence has to be compensated with colloquium. Running late for a class will be treated the same as missing it. Colloquium is a short oral exam in which student has to demonstrate basic knowledge of the material. During the exercises students are required to wear clean and ironed white coats. Students with long hair are required to tie it back in a ponytail. Nails have to be neatly trimmed. Students are required to study the seminar materials in advance.			
Monitoring and assessment (mark in bold)	Class attendance	Class participations	Seminar assignment	Practical training
	Oral exam	**Written exam**	**Continuous assessment**	Essay

Detailed evaluation within a *European point system*

STUDENTS RESPONSIBILITIES	**HOURS (APPROX.)**	**ECTS CONTRIBUTION**	**MARK CONTRIBUTION**
Class attendance and participation	15	0.5	0%
Seminar essay	0	0	0%
Colloquium (2) or Written exam	20	0.75	50%
Oral exam	22	0.75	50%
Further clarification:			

The exam in Physical medicine and rehabilitation consists of three parts: written, practical and oral exam. Written exam consists of 20 multiple-choice questions. Based on the number of correct answers the exam is graded as following: 18-20 points = grade 5 16-17 points = grade 4 14-15 points = grade 3 12-13 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 Physical medicine department. The student has to examine the patient and suggest treatment. The practical exam is graded either as a pass or fail. Oral exam follows the passed practical exam. In an oral exam student draws 3 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 acheived in written and oral exam. Students are able to take the exam in regular summer and autumn exam periods.	
Required literature:	O'Young BJ, Young SA, Stiens SA. Physical medicine and rehabilitation secrets. 3rd edition. Philadelphia: Mosby/Elsevier, 2008. Selected readings from: Braddom RL. Physical Medicine and Rehabilition. 4th edition. Expert Consult- Online and Print, 2010. 3. Selected readings from: Electrotherapy: evidence-based practice, 12edition.(Physiotherapy Essentials), Churchill Livingstone, Edinburgh, 2008.
Optional literature:	Lawry GV, Kreder HJ, Hawker GA, Jerome D. Fam´s Musculosceletal Examination and Joint Injection Tehniques. 2nd edition. Philadelphia: Mosby Elsevier, 2010.
Additional information about the course	Monitoring methods of teaching quality: - student questionnaire - quality analysis by students and teachers - exam results analysis - report of the office for teaching quality - external evaluation (visit of team for quality control)
Teaching unit number	**TOPICS AND LITERATURE**
I.	Title: Basic principles of phisical therapy and rehabilitation. Evaluation of rehabilitation.
	Short description: Types of rehabilitation, disability, damage and functional limitations.
	Literature: required and optional
II.	Title: Thermotherapy, phototherapy, hydrotherapy.
	Short description: Types, mechanism of action, indications and contraindications.
	Literature: required and optional
III.	Title: Electrotherapy, sonotherapy.
	Short description: Classification and mechanism of action.

	Literature: required and optional
IV.	Title: Degenerative and inflammatory rheumatic diseases.
	Short description: Classification, clinical features, treatment.
	Literature: required and optional
V.	Title: Diseases of upper and lower motor neuron.
	Short description: Paraplegia, hemiplegia, MS, specific nerve and plexus palsies.
	Literature: required and optional
VI.	Title: Deformities of vertebral column and joints.
	Short description: Scoliosis, kiyphosis, bad posture, hip luxations.
	Literature: required and optional

Name of the course	**Clinical Rotation: Internal Medicine**			**Code**	
Type of study program Cycle	Integrated study program, Medicine			**Year of study**	V
Credits (ECTS) :	**5**	*Semester*	X	Number of hours per semester (l+e+s)	100 (0+80+20)
Status of the course:	mandatory	*Preconditions:*	Passed all exams of the 4th year	*Comparative conditions:*	
Access to course:	Fifth year medical students			*Hours of instructions*:	According to schedule
Course teacher:	Professor Monika Tomić, MD, PhD				
Consultations:	As agreed				
E-mail address and phone number:	monika.tomic@gmail.com				
Associate teachers					
Consultations:					
E-mail address and phone number:					
The aims of the course:	To learn the principles of disease recognition, diagnosis and ways of treating internal diseases.				
Learning outcomes (general and specific competences):	General outcomes: • Understanding the most common internistic diseases, the principles of recognition and treatment, and the emergencies in internal medicine. • Remembering the most common pulmonary, neurological and infectious diseases. Specific outcomes:				

	• Applying the practical skills and knowledge on the algorithms of the procedures and examinations needed for the synthesis of a differential diagnosis as well as for the treatment of the patients. • Remembering and analyzing the emergency conditions, their treatment and the approach to patients. • Understanding the importance of an active participation in disease prevention and health preservation. • Applying the patient counseling about the drug effects and correct ways of administration.
Course content (Syllabus):	The course consists of 120 hours of instructions that are divided into exercises and seminars, which take place at the Department of Internal Diseases, the Department of Infectious Diseases, the Department of Neurology and the Department of Pulmology. In addition to practical work, which is accompanied by assistants and professors, daily seminars on the most common internal diseases are held.

Format of instruction (mark in bold)				
	Lectures	**Exercises**	**Seminars**	Independent assignments
	Consultations	Work with mentor	Field work	Other
	Remarks:			
Student responsibilities	Students are required to attend classes, it is allowed to justifiably be absent from 20% of classes.			
Screening student work (mark in bold)	Class attendance	**Class participations**	**Seminar essay**	Practical training
	Oral exam	**Written exam**	**Continuous assessment**	Essay

Detailed evaluation within a *European system of points*

STUDENTS RESPONSIBILITIES	**HOURS**	**PROPORTIONS OF ECTS CREDITS**	**PROPORTIONS OF MARK**
Class attendance and participations	30	1	10%
Seminar essay	40	1.5	20%
Written exam	80	2.5	70%
Oral exam	-	-	-

Further clarification:
According to the regulations of the study, final grade is obtained:
A = 91-100% 5
B = 79 to 90% 4
C = 67 to 78% 3
D = 55 to 66% 2
F = 0 to 54% 1

Required literature:	1. Božidar Vrhovac, Igor Francetić, Branimir Jakšić, Boris Labar, Boris Vucelić, Interna medicina Medicinska biblioteka, naklada Levak, Zagreb 2009. 2. Neurologija za medicinare, V. Brinar et al, Medicinska naklada Zagreb 2009. 3. Begovac J, Božinović D, Lisić M, Baršić B, Schoenwakld S. Infektologija. Zagreb: Profil, 2006
Optional literature:	1. Fališevac J. Opća klinička infektologija, 4. dopunjeno izdanje. Zagreb, Školska knjiga, 1985. 2. Neurologija, V. Demarin, Z. Trkanjec; Medicinska naklada Zagreb 2008.
Additional information about the course	Monitoring methods of teaching quality: - student questionnaire - quality analysis by students and teachers - exam results analysis - report of the office for teaching quality - external evaluation (visit of team for quality control)

Annexes: calendar classes

The number of teaching units	**TOPICS AND LITERATURE**
I.	Title: Intestinal infections
	Short description: Familiarization with the etiology of a wide range of intestinal infections, clinical picture, differential diagnosis, tests and treatments.
	Literature: required and optional
II.	Title: Systemic lupus erythematosus (SLE)
	Short description: Familiarization with a possible etiology of SLE, differential diagnosis, criteria for diagnosing SLE, treatment.
	Literature: required
III.	Title: Diabetes mellitus with acute and chronic complications
	Short description: Familiarization with types of diabetes, recognizing acute complications of diabetes, preventing chronic complications. Treatment of diabetes mellitus with emphasis on patient education.
	Literature: required
IV.	Title: Thyroid diseases
	Short description: Etiology of thyroid disease, clinical picture of various thyroid gland diseases, differential diagnosis, treatment. Diseases of thyroid gland in pregnancy.
	Literature: required
V.	Title: Acute renal insufficiency
	Short description: Causes of acute renal insufficiency, the tests that need to be made in differentiating the causes of acute renal insufficiency. Treatment of acute renal insufficiency, basics of hemodialysis.
	Literature: required
VI.	Title: Chronic renal insufficiency

	Short description: The causes of chronic renal insufficiency, clinical stage of CRI, approach and treatment of patients at each stage of renal insufficiency. The basic principles of dialysis (hemodialysis, peritoneal dialysis). Kidney transplantation.
	Literature: required
VII.	Title: Gastrointestinal bleeding
	Short description: Causes of gastrointestinal bleeding, differentiation of bleeding sites, diagnostic tests, approach to the patient with gastrointestinal bleeding and treatment.
	Literature: required
VIII.	Title: Pancreatitis
	Short description: The most common causes of acute and chronic pancreatitis, clinical criteria for diagnosis and severity of the disease, diagnostic methods, approach to treating patients with acute and chronic pancreatitis.
	Literature: required
IX.	Title: Liver cirrhosis and complications
	Short description: The most common causes of liver cirrhosis, its complications, diagnostic methods in diagnosis. Treatment of liver cirrhosis, prevention of complications as well as treatment of complications.
	Literature: required
X.	Title: Cardiac insufficiency
	Short description: Etiology of cardiac insufficiency, early recognition of disease, clinical picture, diagnostic examinations and treatment.
	Literature: required
XI.	Title: Acute coronary syndrome
	Short description: Differential diagnosis of chest pain, guidelines for diagnosis of acute coronary syndrome and treatment of acute coronary syndrome.
	Literature: required
XI.	Title: Pulmonary embolism
	Short description: Discuss the causes of pulmonary embolism, differential diagnosis, and urgent recognition and treatment of a pulmonary embolism.
	Literature: required
XII.	Title: Respiratory insufficiency and gas analysis
	Short description: Familiarization with diseases and conditions that can lead to respiratory insufficiency, gas analysis, interpretation of gas analysis findings, and treatment of respiratory insufficiency.
	Literature: required
XIII.	Title: Approach to a haematological patient
	Short description: Familiarization with the basics of haematological diseases, the necessary laboratory tests, puncture, bone biopsy, radiological diagnosis.
	Literature: required
XIV.	Title: Anemia
	Short description: Causes of anemia, basic laboratory tests needed for anemia diagnostics, other examinations for anemia diagnostics, differential diagnosis and treatment.
	Literature: required

XV.	Title: CVI
	Short description: approach to patients with stroke, diagnostic methods and treatment.
	Literature: required and optional

Name of the course	**Health Ecology and Occupational Medicine**			**Code**	
Type of study program *Cycle*	Integrated study program, Medicine			**Year of study**	V
Credits (ECTS) :	**3**	*Semester*	X	Number of hours per semester (l+e+s)	60 (20+20+20)
Status of the course:	mandatory	*Preconditions:*	Passed all exams from the 4th year	*Comparative conditions:*	
Access to course:	Fifth year students			*Hours of instructions*:	According to plan and program

Course teacher:	Professor Jagoda Doko Jelinić, MD, PhD
Consultations:	As agreed.
E-mail address and phone number:	jdoko@snz.hr
Associate teachers	1. Professor Ivan Vasilj, MD, PhD 2. Assistant professor Krunoslav Capak, MD, PhD 3. Assistant professor Jelena Ravlija, MD, PhD 4. Boženka Galić Tirić, MD 5. S. Šarac, dipl. ing 6. Amila Puzić, MD, MSc 7. Fadil Pašić, MD, MSc
Consultations:	
E-mail address and phone number	
The aims of the course:	The aims of this course are: Understating the chemical, biological and physical factors of the immediate living and working environment, including extraordinary conditions that may adversely affect human health. Applying the methods for monitoring exposure to harmful environmental factors and assessing health effects.
Learning outcomes	General competences: • Applying the independent learning. • Understanding the dependence of health and disease on the chemical, biological and physical factors related to the

<table>
<tr><td>(general and specific competences):</td><td colspan="4">immediate living and working environment, including extraordinary states.
• Synthesis of measures for preventing and mitigating ecological disasters.
<u>Specific competences:</u>
• Evaluation of the results of environmental monitoring and biological monitoring.
• Applying an occupational history and evaluation of the harmful health effects of environmental factors, conditions and modes of work.
• Evaluation of the urgency and the need for action according to the standard procedures in case of poisoning and accidents at work, if conditions permit.
• Evaluation of the effects of long-term exposure to low levels of pollution and low radiation doses.
• Applying knowledge on causes and prevention of occupational injury, occupational diseases, work-related illness and sports, and other diseases that are important to the morbidity of workers as a cause of temporary or permanent disability.
• Synthesis of attitudes on the well-being of a multidisciplinary approach in solving the complex relationships of life and work conditions.
• Applying the knowledge about participation in work of multidisciplinary teams.</td></tr>
<tr><td>Course content (Syllabus):</td><td colspan="4">The course Medical Ecology and Occupational Health consists of 20 teaching units. Each thematic unit includes: 1-2 hours of lectures, 1-3 hours of seminars and 1-3 hours of exercises.</td></tr>
<tr><td rowspan="3">Format of instruction (mark in bold)</td><td>Lectures</td><td>Exercises</td><td>Seminars</td><td>Independent assignments</td></tr>
<tr><td>Consultations</td><td>Work with mentor</td><td>Field work</td><td>Other</td></tr>
<tr><td colspan="4">Remarks:</td></tr>
<tr><td>Student responsibilities</td><td colspan="4">Students are required to attend classes (lectures, exercises, seminars) and to prepare the seminar work.</td></tr>
<tr><td rowspan="3">Screening student work (mark in bold)</td><td>Class attendance</td><td>Class participations</td><td>Seminar essay</td><td>Practical training</td></tr>
<tr><td>Oral exam</td><td>Written exam</td><td>Continuous assessment</td><td>Essay</td></tr>
<tr><td></td><td></td><td></td><td></td></tr>
</table>

Detailed evaluation within a *European system of points*			
STUDENTS RESPONSIBILITIES	**HOURS**	**PROPORTIONS OF ECTS CREDITS**	**PROPORTIONS OF MARK**
Class attendance and participations	0	0	0%
Seminar essay	15	0,5	0%
Written exam	35	1	50%
Oral exam	50	1,5	50%

Further clarification:
The exam is written and oral.
Written test (completed written test is 50% of the grade)
All students who weren't absent from the classes have the right to take the tests. Also, those who pass additional exam from lectures during which they were not in class (20%) can approach to written part of the test.
Written exam contains of 90 questions.
The criteria for evaluating a written exam are: the total percentage of correct answers required for a positive assessment is 60%.
A written exam is a condition for approaching the oral exam.
The final grade that is enrolled into the index is the average grade of the written and oral part of the exam.
According to the Book of Rules, the final grade is obtained as follows:
A = 91-100% 5 (excellent)
B = 79 to 90% 4 (very good)
C = 71 to 80% 3 (good)
D = 61 to 70% 2 (sufficient)
F = 0 to 60% 1 (insufficient)

Required literature:	1. Ljubičić M, Doko Jelinić J, Capak K. : Zdravstvena ekologija, Medicinski fakultet, Mostar2014. 2. Šarić M, Žuškin E. MEDICINA RADA I OKOLIŠA, (Odabrana poglavlja), Medicinska naklada, Zagreb, 2002.
Optional literature:	1. Valić et al. ZDRAVSTVENA EKOLOGIJA, Medicinska naklada, Zagreb, 2001. 2. Beritić-Stahuljak D, Žuškin E, Valić F, Mustajbegović J: MEDICINA RADA, Medicinska naklada, Zagreb, 1999. 3. Senta A, Pucarin-Cvetković J, Doko Jelinić J. KVANTITATIVNI MODELI NAMIRNICA I OBROKA, Medicinska naklada, Zagreb, 2004.
Additional information about the course	Monitoring methods of teaching quality: - student questionnaire - quality analysis by students and teachers - exam results analysis - report of the office for teaching quality - external evaluation (visit of team for quality control)

Annexes: calendar classes

The number of teaching units	**TOPICS AND LITERATURE**
I.	Title: Environment and health
	Short definition and tasks of health ecology, historical development
	Literature: mandatory and additional
II.	Title: Chemical factors in the general environment
	Short description: Health effects of metals, gases and vapors, pesticides
	Literature: mandatory and additional
III.	Title: Physical factors in the general environment
	Short description: noise, health effects of noise exposure, electromagnetic radiation
	Literature: mandatory and additional
IV.	Title: Biological environmental factors
	Short description: diseases caused by microorganisms, diseases of portable vectors
	Literature: mandatory and additional
V.	Title: The Basics of ecological toxicology
	Short description: Input routes, toxicity tests, health and environmental standards
	Literature: mandatory and additional
VI.	Title: Health effects of air pollution
	Short description: atmosphere pollution, air pollution of enclosed spaces
	Literature: mandatory and additional
VII.	Title: Health aspects of housing and urbanization
	Short description: Economic development, industry, energy and traffic
	Literature: mandatory and additional
VIII.	Title: Global health and environmental problems
	Short description: global warming, dewatering of ozone layer, light pollution, soil contamination
	Literature: mandatory and additional
IX.	Title: Nutrition and Health
	Short description: public health meaning of nutrition, methods of assessment of nutrition status, planned and evaluation of nutrition
	Literature: mandatory and additional
X.	Title: Nutritional Supplements
	Short description: food contaminants, laboratory testing of health food hygiene, monitoring of drinking water health
	Literature: mandatory and additional
XI.	Title: Water and Health
	Short description: water supply and disposal of wastewaters, laboratory testing of drinking water health, field exercise: visit to the water supply facility, visit to the waste water treatment system
	Literature: mandatory and additional
XI.	Title: Waste disposal
	Short description: municipal waste, medical waste

	Literature: mandatory and additional
XII.	Title: General principles of medicine work
	Short description: Occupational health work, definition, classification and mechanism of industrial poisoning
	Literature: mandatory and additional
XIII.	Title: Professional hazards
	Short Description: physical, chemical and biological factors
	Literature: mandatory and additional
XIV.	Title: Physiology and psychology of work
	Short description: Physical aspects of workloads, ergonomic approach to man-machine system - working environment, fatigue and prevention measures
	Literature: mandatory and additional
XV.	Title: Professional diseases and diseases related to work
	Short Description: Professional dermatoses, professional malignant tumors, gestational diseases, back pain syndrome
	Literature: mandatory and additional
XVI.	Title: Health risks of selected occupations
	Short description: health workers, traffic workers, aluminum industry
	Literature: mandatory and additional
XVII	Title: Reproductive health and workplace
	Short description: mutagens, carcinogens, endocrine disruptors in the working environment
	Literature: mandatory and additional
XVIII	Title: Environmental control
	Short description: evaluating workplace factors, monitoring, assessing endangering and combating exposure to factors in the workplace
	Literature: mandatory and additional
XIX	Title: Assessment of work ability
	Short description: Work medicine clinic, assessment of temporary disability for work
	Literature: mandatory and additional
XX.	Title: Occupational safety
	Short description: technical, administrative measures of protection, personal protection
	Literature: mandatory and additional

6th Year of Study

Name of the course	**Pediatrics**			**Code**	
Type of study program Cycle	Integrated study program, Medicine			**Year of the study**	VI
Credits (ECTS) :	**12**	*Semester*	XI	Number of hours per semester (l+e+s)	200 (50+90+60)
Status of the course:	mandatory	*Preconditions:*	Passed all exams of the 5th year	*Comparative conditions:*	
Access to course:	Sixth year students			Hours of instructions:	According to schedule

Course teacher:	Associate professor Darinka Šumanović-Glamuzina, MD
Consultations:	Wednesday 8.30
E-mail address and telephone:	dara.glamuzina@tel.net.ba
Associate teachers	Assistant professor Željko Rončević Assistant professor Marijana Jerković Raguž, MD, PhD Mladenka Vukojević, PhD Vesna Brkić, MD, MSc Ivona Letica, MD, MSc Zdravko Kuzman, MD, MSc Milena Oreč, MD, MSc Teo Tomić, MD, MSc Ana Boban Raguž, MD, MSc Borko Rajić, MD, MSc Daniela Kraljević, MD Tomica Božić, MD
Consultations	
E-mail address and telephone:	
Aims of collegium:	To familiarize students with basics of pediatrics as a discipline and enable students to apply basic skill sets required for working with children in primary medical environment.
Outcomes: (basic and specific::	Basic outcomes: Evaluation of personal skills' upgrade, learning abilities and capabilities as well as upgrade and modification of previous knowledge. Specific outcomes: 1. Remembering the basic outlines concerning children of various age (infant, small child, adolescent) as a subject of interest in pediatrics. 2. Understanding preventive measures, treatments and rehabilitation of ill child.

	3. Understanding the importance of vital statistics, and understanding the basic structure of mother and child healthcare organization. 4. Applying neonatal screening, vaccination and other prevention measures as well as preservation of child's health. 5. Understanding the need to monitor normal growth and child development. 6. Understanding, analyzing and evaluation of cases in special pediatrics according to functions and diseases of major organ systems. 7. Understanding and remembering the most frequent acute and chronic illnesses in children that can be managed on primary level. 8. Applying the ability to resolve most common pediatric emergencies.			
Course content (Syllabus):	Pediatric collegium consists of 200 school hours divided in 10 sections trough lectures, practical work and seminars. 10 learning sections are as follows: social medicine, neonatology, immunology, hematology, nephrology, cardiology, pulmology, endocrinology, gastroenterology, genetics, neurology, child orthopedic surgery and emergencies.			
Format of instruction (mark in bold)	**Lectures**	**Practices**	**Seminary**	**Independent assignments**
	Consultations	Work with Mentor	Field work	Other
	Remarks: Each class begins with morning practice that introduces student to practical aspect of recognition and treatment of pediatric pathologies. During morning practice, simple diagnostic procedures are carried out by students independently. During work with mentor, together with practical work there is everyday testing of learned lessons. After that there are seminaries that are carried out interactively and students alone or in the small groups have the opportunity to practice case solving. At the end is block of lectures from scheduled part of pediatrics.			
Student responsibilities	Attending and actively taking part in morning practice classes, with nurses and mentors, classes, and seminars. Individual preparation of at least one seminar.			
Screening student work (mark in bold)	**Class attendance**	**Class participations**	**Seminar essay**	**Practical training**
	Oral exam	**Written exam**	**Continuous assessment**	Essay

Detailed evaluation within a European system of points			
OBVEZE STUDENTA	**HOURS**	**UDIO U ECTS-u**	PROPORTIONS OF MARK
Class attendance and participations	40	1,5	

Seminar essay	0	0	
Written exam	85	3	40%
Oral exam	145	5	50%
Practical exam	70	2,5	10%

Further clarification: Conditions to take the Pediatrics exam are passed written, practical and oral exam
Written exam is consisted of 40 questions in Problem solving style, where student chooses most accurate of 5 answers. Sometimes there are few right answers but student is required to find the one that most accurately describes the situation. **This form of questions ensures precise knowledge of the subject.**
Written exam is a 40% of grade.
Student is taking the practical exam in front of assistants (mentors). Student is required to show knowledge in recognition and treatment of specific conditions in children's pathology.
Student is given a single patient and in this exam very important is to show knowledge in anamnesis, status, differential diagnosis, analysis of laboratory and other findings.
This exam is 10% of grade.
Oral exam consists of 5 questions that student draws from 100 questions that are prescribed by course program and are from textbook D. Mardešić Pedijatrija. Student must know all the answers, and quality of presentation, interpretation, and differential diagnosis is what counts for grade.
This exam is 50 % of grade
Final written exam grading:
A = 91-100% points (5)
B = 79 – 90% points (4)
C = 67 – 78% points (3)
D = 55 – 66% points (2)
F = 0 – 54% points (1)
According to the regulations of the study, final grade is obtained: A = 91-100% 5 B = 79 to 90% 4 C = 67 to 78% 3 D = 55 to 66% 2 F = 0 to 54% 1

Required literature:	D. Mardešić i sur: *Pedijatrija*, Školska knjiga, Zagreb, 2003. M. Boranić: *Zbirka zadataka iz pedijatrije – Priručnik za pripremanje ispita i provjeru znanja*, Školska knjiga, Zagreb 2004.
Optional literature::	Lj. Zergollern-Čupak: Pedijatra, IK Naprijed, Zagreb 1994.
Additional information about the course	Monitoring methods of teaching quality: - student questionnaire - quality analysis by students and teachers - exam results analysis - report of the office for teaching quality - external evaluation (visit of team for quality control)

Annexes: calendar classes

The number of teaching units	**TOPICS AND LITERATURE**
I.	Title: Social pediatrics
	Short description: Morbidity and mortality of children, Childrens rights, Children's psychology.
	Literature: required and optional
II.	Title: Newborn

	Short description: physiological aspect of adaptation, pathology, assessment of vitality, assessment of gestation age, reflexes.
	Literature: required and optional
III.	Title: hematology
	Short description: Development and functions of blood and immunity, anemia, leukemia, solid tumors, defects in hemostasis, immunodeficiency, interpretation of lab results.
	Literature: required and optional
IV.	Title: Endocrinology
	Short description: Diabetes mellitus I and II, endocrine organ dysfunction, basic principles of electrolyte and acid-base dysbalances.
	Literature: required and optional
V.	Title: Nephrology
	Short description: infections, anomalies, nephropathies, nocturia, tubulopathies, rickets.
	Literature: required and optional
VI.	Title: Gastroenterology
	Short description: Natural and artificial nutrition in infancy, parenteral nutrition, acute and chronic diseases of intestinal tract, liver diseases.
	Literature: required and optional
VII.	Title: Neurology
	Short description: Epilepsy, seizures, anomalies, tumors, degenerative diseases, intracranial hemorrhages, ischemia, craniocerebral trauma, infections, diagnostic procedures.
	Literature: required and optional
VIII.	Title: Genetics
	Short description: Hereditary and acquired in development, basics of human genetics, prenatal damage, chromosomal and metabolic diseases
	Literature: required and optional
IX.	Title: Pulmology
	Short description: ARI, pneumonias, TBC, CF, bronchiolitis, Bronchitis, asthma, allergies, malformations, foreign objects in respiratory tract.
	Literature: required and optional
X.	Title: Cardiology
	Short description: Diagnostic methods, hearth murmurs, congenital heart defects, myocarditis, arrhythmias, rheumatic fever, Kawasaki sy, collagenosis, arterial hypertension, circulation shock
	Literature: required and optional

Name of the course	**Family Medicine with Clinical Rotation**	**Code**	
Type of study program	Integrated study program, Medicine	**Year of study**	VI

<table>
<tr><td>Cycle</td><td colspan="3"></td><td></td><td></td></tr>
<tr><td>Credits (ECTS) :</td><td>11</td><td>Semester</td><td>XI</td><td>Number of hours per semester (l+e+s)</td><td>180 (22+114+44)</td></tr>
<tr><td>Status of the course:</td><td>mandatory</td><td>Preconditions:</td><td></td><td>Comparative conditions:</td><td></td></tr>
<tr><td>Access to course:</td><td colspan="3">Sixth year medical students</td><td>Hours of instructions:</td><td>According to schedule</td></tr>
<tr><td colspan="2">Course teacher:</td><td colspan="4">Prof. Edita Černy Obrdalj, MD, PhD</td></tr>
<tr><td colspan="2">Consultations:</td><td colspan="4">Mondays and Wednesdays from 1 - 2 PM or by appointment</td></tr>
<tr><td colspan="2">E-mail address and phone number:</td><td colspan="4">ecerniobrdalj@gmail.com</td></tr>
<tr><td colspan="2">Associate teachers</td><td colspan="4">Assistant professor Amra Zalihić, MD, PhD
Assistant professor Nina Pinjuh Markota, MD, PhD
Gordana Pivić, MD, MSc
Zdenko Klarić, MD, MSc
Ana Marija Barać, MD, MSc
Renata Pehar, MD
Sanja Đurasović, MD
Suzana Maslać, MD
Zrinka Blažević, MD
Mrina Babić, MD</td></tr>
<tr><td colspan="2">Consultations:</td><td colspan="4"></td></tr>
<tr><td colspan="2">E-mail address and phone number:</td><td colspan="4"></td></tr>
<tr><td>The aims of the course:</td><td colspan="5">The objectives of this course are:
Diagnosing, treating and preventing the most common health problems and risk factors in family medicine.</td></tr>
<tr><td>Learning outcomes (general and specific competences):</td><td colspan="5">General outcomes:
• Applying the independent learning and practice of acquired knowledge.
• Understanding the active care for patient and it's evaluation through application of evidence based medicine.
Specific outcomes:
• Applying a medical history taking, clinical examination, interpretation of clinical symptoms and signs, interpretation of laboratory and other tests results.
• Evaluation of final diagnosis.
• Understanding the need to refer patients on diagnostic procedures and consultative examinations.
• Applying the skills of advising patients and medication prescription taking into account of healthcare costs.
• Applying the clinical knowledge and skills in certain clinical cases and situations.</td></tr>
</table>

<table>
<tr><td></td><td colspan="4">• Understanding the performance of preventive examinations and risk factors identification.
• Actively participating in organization of clinical praxis.</td></tr>
<tr><td>Course content (Syllabus):</td><td colspan="4">The course is conducted of 180 hours in blocks of 6 or 8 hours. Lectures last for 22 hours, seminars for 44 hours, and practice work for 114 hours.
Theoretical part includes lectures and seminars. Practical training consists of practice in Family Medicine (FM) Clinics at the Health Care Center of Mostar and in rural FM clinics. Each student has obligation to practice at both locations.
A part of the practical work is carried out in the Office of clinical skills at the School of Medicine.</td></tr>
<tr><td rowspan="3">Format of instruction (mark in bold)</td><td>Lectures</td><td>Exercises</td><td>Seminars</td><td>Independent assignments</td></tr>
<tr><td>Consultations</td><td>Work with mentor</td><td>Field work</td><td>Other</td></tr>
<tr><td colspan="4">Remarks:</td></tr>
<tr><td>Student responsibilities</td><td colspan="4">Students are required to:
- be present in class
- present seminar’s work
- write letter to patient
- keep medical records, write referrals and prescriptions, write the form of sick leave as well as the disease report</td></tr>
<tr><td rowspan="3">Screening student work (mark in bold)</td><td>Class attendance</td><td>Class participations</td><td>Seminar essay</td><td>Practical training</td></tr>
<tr><td>Oral exam</td><td>Written exam</td><td>Continuous assessment</td><td>Essay</td></tr>
<tr><td></td><td></td><td></td><td></td></tr>
<tr><td colspan="5">Detailed evaluation within a European system of points</td></tr>
</table>

STUDENTS RESPONSIBILITIES	**HOURS**	**PROPORTIONS OF ECTS CREDITS**	**PROPORTIONS OF MARK**
Class attendance and participations	30	1	0%
Seminar essay	30	1	0%
OSCE	75	2,5	20%
Written exam	120	4	50%
Oral exam	70	2,5	30%

Further clarification:
The conditions for the final evaluation are: attending theoretical and practical classes, presentation of the seminar, case study, a letter to patient and a positive mentors’ assessment, OSCE (objective structured clinical examination).
OSCE consists of five stations.
For students who were absent more than 20% of classes with the justified reasons, there will be a colloquium in conjunction with the heads of the seminars or trainings.

The written exam consists of 60 multiple choice questions. The exam lasts 60 minutes. It's necessary to bring graphite pencil, eraser and pen. Before the exam applicants should postpone things (bags, books, cell phones). For a positive grade student should solve at least 60% of questions. The oral exam consists of three questions: one from general area, and two in the form of solving clinical problems. According to the regulations of the study, final grade is obtained: A = 91-100% 5 B = 79 to 90% 4 C = 67 to 78% 3 D = 55 to 66% 2 F = 0 to 54% 1	
Required literature:	E. Černy Obrdalj, Zalihić A. Basics of Family Medicine. Mostar: School of Medicine, 2015.
Optional literature:	Rosser WW, Shafir MS. Evidence-based family medicine. New York: Decker, 2002.
Additional information about the course	Monitoring methods of teaching quality: - student questionnaire - analysis the teaching quality of teachers - exam results analysis - report of the office for teaching quality - external evaluation (visit of team for quality control)

Annexes: calendar classes

The number of teaching units	**TOPICS AND LITERATURE**
I.	Title: Introductory lecture. Family Medicine as a medical discipline. Patient oriented medicine. Doctor-patient communication.
	Short description:
	Literature: optional and additional
II.	Title: Women's health. Emergency intervention in family medicine. Rational use of drugs, rational referral
	Short description:
	Literature: optional and additional
III.	Title: The heavy patient. Chronic respiratory diseases (COPD and asthma). Communicating bad news
	Short description:
	Literature:
IV.	Title: Cardiovascular risk assessment. The problems of the elderly
	Short description:
	Literature: optional and additional
V.	Title: Vertigo. Dermatological problems. Family violence.
	Short description:
	Literature: optional and additional
VI.	Title: Diabetes mellitus. In family medicine clinics. A patient with abdominal pain. Musculoskeletal system injuries.

	Short description:
	Literature: optional and additional
VII.	Title: Hypertension - detection and monitoring. School children - adolescents in family medicine clinics. Health of preschool children. Working organisation in the family medicine clinic. How to start working?
	Short description:
	Literature: optional and additional
VIII.	Title: Management of arthritis in family medicine. Thyroid problems in family medicine. Follow up of kidney patients. Programs od health promotion and prevention.
	Short description:
	Literature: optional and additional
IX.	Title: Palliative care: the role of family physician. Gastrointestinal problems. Smoking sessation.
	Short description:
	Literature: optional and additional
X.	Title: Evaluation of chest pain. Acute respiratory infection in practice. Headache, differential diagnosis and management.
	Short description:
	Literature:
XI.	Title: Anxiety and depression. Drug addicted patients, methadone therapy. Men's health.
	Short description :
	Literature: optional and additional

Name of the course	**Epidemiology with Clinical Rotation**				**Code**	
Type of study program Cycle	Integrated study program, Medicine				**Year of study**	VI
Credits (ECTS) :	**3**	*Semester*	XI		Number of hours per semester (l+e+s)	60 (20+20+20)
Status of the course:	mandatory	*Preconditions:*	passed all exams of the 5th year		*Comparative conditions:*	
Access to course:	Sixth year students			*Hours of instructions*:		according to schedule
Course teacher:	Ivan Vasilj, MD, PhD, assistant professor					
Consultations:	As agreed					
E-mail address and phone number:	ivanvasilj@net.hr					
Associate teachers	Professor Jelena ravlija, MD, PhD Davor Pehar, MD					

Consultations:	As agreed			
E-mail address and phone number:				
The aims of the course:	The aims of this course are: To analyze the epidemiological measures; frequency measures, measures of association and formulate hypotheses in epidemiology. To explain models of infectious and mass non-infectious diseases control, and discuss about the importance of immunization.			
Learning outcomes (general and specific competences):	• Synthesize the epidemiological and statistical research. • Analyzing epidemiological data. • Understanding how to apply all kinds of epidemiological and statistical research studies in practice. • Synthesis of hypotheses and aims. • Independently analyzing data and materials during epidemiological research. • Applying knowledge about the prevention of infectious and non-infectious diseases in practice. • Analyzing, evaluating and applying the general concepts in epidemiology, epidemiological variables and studies. • Adoption of skills from this course and recognition of the importance of the same, will be evaluated through seminars and practical exercises and on the final oral exam.			
Course content (Syllabus):	Education during the course begins with lectures, followed by seminars and exercises. At the seminars, students get specific topics that they process in groups of 5-6 students. Seminars are exposed in groups and students discuss about the quality of completed tasks. During exercises students also work in groups and try to make practical tasks through interactive work.			
Format of instruction (mark in bold)	**Lectures**	**Exercises**	Seminars	**Independent assignments**
	Consultations	Work with mentor	Field work	Other
	Remarks:			
Student responsibilities				
Screening student work (mark in bold)	**Class attendance**	**Class participations**	**Seminar essay**	**Practical training**
	Oral exam	**Written exam**	**Continuous assessment**	Essay

Detailed evaluation within a *European system of points*

STUDENTS RESPONSIBILITIES	HOURS	PROPORTIONS OF ECTS CREDITS	PROPORTIONS OF MARK

Class attendance and participations	20	0.5	
Seminar essay	35	1	20%
Written exam	35	1	60%
Oral exam	20	0.5	20%

Further clarification:
According to the regulations of the study, final grade is obtained:
A = 91-100% 5
B = 79 to 90% 4
C = 67 to 78% 3
D = 55 to 66% 2
F = 0 to 54% 1

Required literature:	Vasilj I. Selected chapters in epidemiology. University book. Mostar 2009. Puntarić D, Ropac D. Epidemiology of infectious diseases. Medical edition. Zagreb. 2010. Strand M, Vorko-Jović A, Rudan I. Epidemiology of chronic non – infectious diseases. Medical edition. Zagreb. 2010.
Optional literature:	Babuš V. Epidemiological methods, Medical edition, Zagreb, 2000. Bhopal R. Concepts of epidemiology: an integrated introduction to the ideas theories, principles and methods of epidemiology. Oxford, 2002. p 242. Cavaljuga S. Descriptive statistics. School of medicine. Sarajevo, 2011. Puvačić Z. Statistics in medicine. Sarajevo. 2004.
Additional information about the course	Monitoring methods of teaching quality: - student questionnaire - quality analysis by students and teachers - exam results analysis - report of the office for teaching quality - external evaluation (visit of team for quality control)

Annexes: calendar classes

The number of teaching units	**TOPICS AND LITERATURE**
I.	Title: Epidemiology
	Short description: introduction to history of epidemiology, definition and importance of epidemiology
	Literature: required and optional
II.	Title: Epidemiological researches
	Short description: Analytical, experimental and meta-analysis
	Literature: required and optional
III.	Title: Epidemiological characteristics
	Short description: epidemiological variables, Vogralik′s chain, epidemiology of infectious diseases
	Literature: required and optional
IV.	Title: Epidemiological measures

	Short decription: types of epidemiological measures, frequency and correlation
	Literature: required and optional
V.	Title: Control of infectious and non-infectious diseases
	Short description: epidemiology of mass non-infectious diseases, measures of frequency, connection and potential impact
	Literature: required and optional
VI.	Title: Infections
	Short description: blood transmitted diseases, techniques of epidemiological control of hospital infections.
	Literature: required and optional
VII.	Title: Military epidemiology
	Short description: military epidemiology, clinical, molecular and genetic pharmacoepidemiology
	Literature: required and optional
VIII.	Title: Vaccines
	Short description: planning of mandatory vaccination, optional vaccines, vaccination under certain epidemiological condition and importance of vaccines. DDD in the control of infectious diseases
	Literature: required and optional
IX.	Title: Infectious diseases
	Short description: intestinal infectious diseases, anthropozoonosis, preventable infectious diseases.
	Literature: required and optional
X.	Title: Infectious diseases that threaten public health
	Short description: epidemiology of infectious diseases transmitted by insects
	Literature: required and optional
XI.	Title: Communication
	Short description: Importance of communication in epidemiology
	Literature: required and optional

Name of the course	**Medical Statistics**			**Code**	
Type of study program Cycle	Integrated study program, Medicine			**Year of study**	VI
Credits (ECTS) :	**1**	*Semester*	XI	Number of hours per semester (l+e+s)	30 (5+20+5)
Status of the course:	required	*Preconditions:*		*Comparative conditions:*	
Access to course:	Sixth year students			*Hours of instructions*:	According to schedule

Course teacher:	Assistant professor Sandra Kostić, PhD
Consultations:	According to individual arrangement
E-mail address and phone number:	sandra.kostic@mefst.hr
Associate teachers	Marko Martinac, MD, PhD
Consultations:	According to individual arrangement
E-mail address and phone number:	

The aims of the course:	Understanding the basics of medical statistics. The students will learn to make appropriate study design and data analysis, and critically evaluate the results of statistical analysis.
Learning outcomes (general and specific competences):	After the end of the course, students will be able to: - Define the research hypotheses, in order to address the questions of medical relevance - Calculate the sample size - Make the appropriate study design - Name and learn to use different softwares for statistical analysis - Choose the appropriate statistical methods - Critically evaluate the results of statistical analysis
Course content (Syllabus):	- How to make the appropriate study design? - Defining the hypothesis - How many samples/people do I need? Calculating the sample size - Statistical methods and softwares - Critical evaluation of the results of published papers'statistical analysis

Format of instruction (mark in bold)	**Lectures**	**Exercises**	**Seminars**	**Independent assignments**
	Consultations	Work with mentor	Field work	Other
Student responsibilities	Final exam Students will be evaluated based on: • Active participation in seminars and exercises.			
Screening student work (mark in bold)	**Class attendance**	**Class participations**	**Seminar essay**	**Practical training**
	Oral exam	**Written exam**	**Continous assesment**	Essay

Detailed evaluation within a *European system of points*

STUDENTS RESPONSIBILITIES	**HOURS**	**PROPORTIONS OF ECTS CREDITS**	**PROPORTIONS OF MARK**

Class attendance and participations	4	0,1	10%
Seminar essay	10	0,3	20%
Written exam	15	0,6	70%
Oral exam			
Practical work			

Required literature:	Rosner, B: "Fundamentals of Biostatistics", 7th ed. 2010 Chapters from: - Marušić M, ur. Uvod u znanstveni rad u medicini. 4. izdanje. Zagreb: Medicinska naklada; 2008 „hand-outs“
Optional literature:	Current review and original scientific articles
Additional information about the course	Methods of monitoring the quality of teaching: student survey Quality control analysis by the students and teachers Analysis of passing the exams The report of the Office for the quality of teaching

Annexes: calendar classes

The number of teaching units	TOPICS AND LITERATURE
I.	Title: How to make the appropriate study design?
	Short description: Making the appropriate study design in order to answer medically relevant question
	Literature: required and optional
II.	Title: Defining the hypothesis
	Short description: Defining the clear hypothesis for the scientific research
	Literature: required and optional
III.	Title: How many samples/people do I need? Calculating the sample size
	Short description: The evaluation of the number of samples in order to get an answer to our hypothesis.
	Literature: required and optional
IV.	Title: Statistical methods and softwares
	Short description: The use of different statistical programs for organizing the data and for statistical analysis; constructing graphs and tables
	Literature: required and optional
V.	Title: Critical evaluation of the results of published papers’statistical analysis
	Short description: Evaluation of the statistical analysis data taken from scientific papers
	Literature: required and optional

Name of the course	**Forensic Medicine**			**Code**	
Type of study program Cycle	Integrated study program, medicine			**Year of study**	VI
Credits (ECTS) :	**3**	*Semester*	XI	Number of hours per semester (l+e+s)	50 (17+16+17)
Status of the course:	mandatory	*Preconditions:*	Passed all exams of the 5th year	*Comparative conditions:*	
Access to course:	Sixth year students			*Hours of instructions*:	according to schedule

Course teacher:	Professor Marija Definis Gojanović, MD, PhD
Consultations:	according to deal
E-mail address and phone number:	marija.dg@gmail.com (+ 385 91 201 64 31)
Associate teachers	Kristijan Bečić, MD, PhD
Consultations:	-
E-mail address and phone number:	-

The aims of the course:	The aims of this course are: understanding the work and organization of forensic medicine; analyzing the difference between natural and violent damage of health, natural and violent death; apply the time, cause and manner of health damage and death; understanding problems of identification in expertise of judicial proceedings and also understanding of medical responsibilities and obligations.
Learning outcomes (general and specific competences):	After finish and pass this course, students will: General competences: Applying the independent learning habits with critical and self-critical questioning of scientific truth; apply the habit of professional literature use. Remembering the possession of the personal qualities of personality (team work, personal contribution, interest, active listening, and building positive relationships with members of the group; tolerance; attitude towards the profession). Specific competences: Understanding the basic terms in the field of thanatology, violent damage to health and death, identification, expertise, transport trauma and medical deontology. Analyzing and synthesizing the medical facts for the purposes of the legal profession; Independently applying the external examination of dead body

	Understanding the signs and causes of death; understanding violent / infectious death and apparent death and applying appropriate action, as well as remembering of application forms of death; Understanding the correct data collection, documentation and reporting of alive persons' injuries. Understanding the correct collection, storage and forwarding of samples for toxicological and other analysis			
Course content (Syllabus):	Course consists of 8 units, 8 test assessment in seminars, 8 colloquium assessment on exercises. Each thematic unit includes: 2 hours of lectures, 2-3 hours of seminars and 2-3 hours of exercises.			
Format of instruction (mark in bold)	**Lectures**	**Exercises**	**Seminars**	**Independent assignments**
	Consultations	Work with mentor	**Field work**	Other
	Remarks: Instruction of each unit begins with lectures, seminars and exercises. At the seminars, students receive professional and scientific paper from optional literature with obligation to analysis and presentation the same. The aim is extension of knowledge from thematic units discussed in class. During exercises, students work in small groups and try to solve specific problematic tasks and cases from medical practice.			
Student responsibilities	Attendance and active participation during classes; Analysis of seminar topics with project task presentation in power point version and oral presentation of homework; coloquium of exercises; final exam. Students will be evaluated according to: - attendance and active participation during seminars and exercises, -preparation of the seminar in the form of homework and presentations, -reading texts and developing of own critical thinking about the material and express that meaning -work in small groups			
Screening student work (mark in bold)	**Class attendance**	**Class participations**	**Seminar essay**	**Practical training**
	Oral exam	**Written exam**	**Continous assesment**	Essay

Detailed evaluation within a *European system of points*

STUDENTS RESPONSIBILITIES	**HOURS**	**PROPORTIONS OF ECTS CREDITS**	**PROPORTIONS OF MARK**
Class attendance and participations	25	1	20 %
Seminar essay	25	1	30%
Final exam	30	1	50%
Further clarification:			

Project work includes processing of the given topic with PPP. Successful creation can achieve of 15% part in the final grade.
Homework (2 homework) includes processing and oral presentation of selected seminar topics. Successful creation can achieve 15% of final mark (2 homework include by 7.5% part in grade).
Final exam includes written, oral and practical part of the exam.
The right to take the exam have students who were not absent from classes. Students have to pass all teaching units before the final exam if they were not present during classes or did not present enough knowledge.
Written exam (test of 60 questions, threshold transience of 60% of correct answers; 16% of the final grade)
36-42 = sufficient (2);
43-48 = good (3);
49-54 = very good (4);
55-60 = excellent (5);
Practical exam (14% of the final grade)
The practical exam consists of a written solution and the oral explication of given query.
Oral exam (20% of the final grade)
Oral part of exam consists of 3 questions. Students draw cards with certain questions.
Final grade: the sum of : attendance and activity during the classes (20%) + project preparation and homework (30%) + final exam (50% / 16% written part, practical part 14%, oral part of exam 20%/).
According to the regulations of the study, final grade is obtained:
A = 91-100% 5
B = 79 to 90% 4
C = 67 to 78% 3
D = 55 to 66% 2
F = 0 to 54% 1

Required literature:	Zečević D. Forensic medicine and deontology. Medical edition. Zagreb.2004.
Optional literature:	Di Maio D, Di Maio V. Forensic Pathology, 2nd ed. CRC Press. 2001. Zečević D. Expertise of severity body injuries in criminal process. Informator. Zagreb.1985. Milan Čović. Expertise in traffic. Informator. Zagreb. 1987. Primorac D. Analysis of DNA in forensic medicine and judiciary. Medical edition. Zagreb. 2008. Separated parts of domestic and foreign literature
Additional information about the course	Methods of monitoring the quality of education: - student questionnaire - analysis of the quality of the teacahing of teachers - analysis of exam results - report of the office for quality of teaching - external evaluation (visit of team for quality control)

Annexes: calendar classes

The number of teaching units	**TOPICS AND LITERATURE**
I.	Title: Demage of health and death
	Short description: cause, mechanism, types of death; sudden, suspicious death; sudden natural death; the importance of autopsy
	Literature: required and optional
II.	Title: Injuries - mechanical
	Short description: specific and non-specific mechanical injuries, specific damage of certain part of body; craniocerebral injuries
	Literature: required and optional
III.	Title: Injuries - asphyxia, physical, psychological, nutritional injuries
	Short description: suffocation and strangulations, general and local effects of elevated and reduced temperature; with electricity caused injuries; psychic trauma; violent thirst and starvation
	Literature: required and optional
IV.	Title: Injuries – chemical (toxicology)
	Short description: introduction to forensic toxicology; significant poisons in toxicology; alcohol and drugs
	Literature: required and optional
V.	Title: Thanatology
	Short description: agony, apparent death; early and late signs of death; determining the time of death; effect of animals on human remains
	Literature: required and optional
VI.	Title: Medical criminalistic
	Short description: investigation; biological traces; forensic anthropology; forensic odontology; forensic entomology; identification
	Literature: required and optional
VII.	Title: Criminal activity
	Short description: corporal injuries and qualification, murder, suicide, illegal abortion, infanticide; crimes against sexual freedom and sexual morality
	Literature: required and optional
VIII.	Title: Expertise and medical deontology
	Short decription: expert and expertise in criminal / civil proceedings; expertise in road transport; expertise in paternal lawsuit; criminal responsibility of doctors; medicine in the service of the state
	Literature: required and optional

Name of the course	**Clinical Pharmacology**	**Code**	
Type of study program Cycle	Integrated study program, Medicine	**Year of study**	VI

Credits (ECTS) :	**2**	*Semester*	XI	Number of hours per semester (l+s)	40 (10+15+15)
Status of the course:	required	*Preconditions:*		*Comparative conditions:*	
Access to course:	Sixth year students			*Hours of instructions*:	According to schedule
Course teacher:	Head: Filipa Markotić MD PhD				
Consultations:	Friday from 1pm to 2 pm or according to the agreement				
E-mail address and phone number:	filipa.markotic@gmail.com				
Associate teachers	Associate professor Ivan Kosalec Ivan Merdžo, MD				
Consultations:	Friday from 1pm to 2 pm or according to the agreement				
E-mail address and phone number:	ikosalec@pharma.hr				
The aims of the course:	The objectives of this course are: to introduce medical students with basic facts about the process of drug discovery and development and rational pharmacotherapy. The rational use of drugs requires that patients receive medications appropriate to their clinical needs, in doses that meet their own individual requirements, for an adequate period of time, and at the lowest cost to them and their community.				
Learning outcomes (general and specific competences):	On completion of the course, the student should achieve general and specific outcomes: − Describe and explain the process of drug discovery and development − Describe and explain general principles of drug action (pharmacodynamic) and fate of drug in the body (pharmacokinetic) − Explain the basis of pharmacoeconomics and pharmacoepidemiology − Name and explain the use of dietary supplements and herbal medications − Describe and explain the basis of drug biotransformation, and name and describe the main adverse drug reaction and interactions − Describe an explain of personalized treatments and treatment issues for special groups − Explain the basis of toxicology − Describe and explain the basics of evidence-based medicine and describe steps of writing guidelines − Name and describe principles of pharmacotherapy for specific clinical conditions Outcomes will be evaluated with continuous assessment during seminars and the final exam.				
Course content (Syllabus):	L1 (1 hour) Drug discovery and development L2 (1 hour) Clinical pharmacokinetics				

<table>
<tr><td></td><td colspan="4">L3 (1 hour) Pharmacodynamics
L4 (1 hour) Pharmacoeconomics
L5 (1 hour) Pharmacoepidemiology
L6 (1 hour) Drug biotransformation, adverse effects and drug interactions
L7 (2 hours) Personalized medicine and treatment issues for special groups
L8 (1 hour) Dietary supplements and herbal medications
L9 (1 hour) Generic substitution and Over-the-Counter agents
L10 (1 hour) Biological medication
L11 (2 hours) Introduction to toxicology
L12 (2 hours) Guidelines and evidence-based medicine (EBM)
S1 (2 hours) Antimicrobial agents
S2 (1 hour) Pharmacotherapy of hypertension
S3 (1 hour) Pharmacotherapy of angina pectoris
S4 (1 hour) Antiplatelet and anticoagulation therapy
S5 (1 hour) Drugs used in heart failure
S6 (1 hour) Agents used in hyperlipidemia and pharmacotherapy for peripheral arterial disease
S7 (1 hour) Antidiabetic drugs
S8 (1 hour) Drugs used in asthma and anaphylaxis treatment and management
S9 (1 hour) Drugs used in the treatment of gastrointestinal diseases
S10 (1 hour) Sedative-hypnotic drugs
S11 (1 hour) Antidepressant agents
S12 (1 hour) Antipsychotic agents
S13 (1 hour) Pharmacologic management of Parkinsonism and Alzheimer’s disease
S14 (1 hour) Pharmacotherapy of pain
S15 (2 hours) Hormone replacement therapy
S16 (1 hour) Therapies for osteoporosis</td></tr>
<tr><td rowspan="3">Format of instruction (mark in bold)</td><td>Lectures</td><td>Exercises</td><td>Seminars</td><td>Independent assignments</td></tr>
<tr><td>Consultations</td><td>Work with mentor</td><td>Field work</td><td>Other</td></tr>
<tr><td colspan="4">Remarks: The teaching is given as lectures and seminars.</td></tr>
<tr><td>Student responsibilities</td><td colspan="4">Students will be evaluated based on:
• Active participation in seminars.
• Read teaching texts and develop their own critical thinking about the material and express those views.</td></tr>
<tr><td rowspan="2">Screening student work (mark in bold)</td><td>Class attendance</td><td>Class participations</td><td>Seminar essay</td><td>Practical training</td></tr>
<tr><td>Oral exam</td><td>Written exam</td><td>Continous assesment</td><td>Essay</td></tr>
</table>

Detailed evaluation within a *European system of points*			
STUDENTS RESPONSIBILITIES	**HOURS**	**PROPORTIONS OF ECTS CREDITS**	**PROPORTIONS OF MARK**
Class attendance and participations	15	0.5	10%
Written exam	40	1.5	90%
The assessment criteria of written exam: Examination takes place as independent written test. According to the regulations of the study, final grade is obtained: A = 91-100% 5 B = 79 to 90% 4 C = 67 to 78% 3 D = 55 to 66% 2 F = 0 to 54% 1			

Required literature:	1. Basic &Clinical Pharmacology, B.G. Katzung, A. Trevor (eds). 13st McGrawHill Companies, NewYork, 2015.
Optional literature:	1. Rang and Dale's Pharmacology. J. Ritter, R. Flower, G. Henderson, H. Rang. 8st Churchill Livingstone,2015. 2. Updated scientific article
Additional information about the course	Students' responsibilities are in accordance to Rules of studying and Deontological code of MEFMO students. Methods of monitoring the quality of teaching: student survey Quality control analysis by the students and teachers Analysis of passing the exams The report of the Office for the quality of teaching

Annexes: calendar classes

The number of teaching units	TOPICS AND LITERATURE
I.	Title: Drug discovery and development (1 h L)
	Short description: Describe and explain the process of preclinical and clinical trials
	Literature: required and optional
II.	Title: Clinical pharmacokinetics (1 h L)
	Short description: Description of fate of drug in the body
	Literature: required and optional
III.	Title: Pharmacodynamics (1 h L)
	Short description: Mechanisms of drug action, receptors, signal transduction
	Literature: required and optional
IV.	Title: Pharmacoeconomics

	(1 h L)
	Short description: Definition of pharmacoeconomics. Basic terminology in pharmacoeconomics. Pharmacoeconomic analysis. Monitoring of drug-related expenditure.
	Literature: required and optional
V.	Title: Pharmacoepidemiology (1 h L)
	Short description: Definition of pharmacoepidemiology. Basic therminology in pharmacoepidemiology. Adherence in therapies.
	Literature: required and optional
VI.	Title: Drug biotransformation, adverse effects and drug interactions (1 h L)
	Short description: Description the process of drug biotransformation. Definition adverse effects and drug interactions. Description mechanisms of the most important adverse effects and drug interaction.
	Literature: required and optional
VII.	Title: Personalized medicine and treatment issues for special populations (2 h L)
	Short description: Definition of personalized medicine and basic terminology. Description of treatment issues for special populations. Therapeutic drug monitoring.
	Literature: required and optional
VIII.	Title: Dietary supplements and herbal medications (1 h L)
	Short description: Description the most used dietary supplements and herbal medications. Potential adverse effects and interaction of them.
	Literature: required and optional
IX.	Title: Generic substitution and Over-the-Counter agents (1 h L)
	Short description: Definition of generic substitution and Over-the-Counter agents. Their place in pharmacotherapy.
	Literature: required and optional
X.	Title: Biological medication (1 h L)
	Short description: Definition of biological medication. Short review for biological medication.
	Literature: required and optional
XI.	Title: Introduction to toxicology (2 h L)
	Short description: Effects of toxic substance in the organism.
	Literature: required and optional
XII.	Title: Guidelines and evidence-based medicine (EBM) (2 h L)
	Short description: Definition. Guidelines and EMB in practice. Database.
	Literature: required and optional
XIII.	Title: Principles of pharmacotherapy for specific clinical conditions

	(18h S)
	Short description: Students will be introduced with pharmacotherapy for specific clinical conditions according the new guidelines.
	Literature: required and optional

Name of the course	**Clinical Rotation: Surgery**			**Code**	
Type of study program Cycle	Integrated study program, Medicine			**Year of study**	VI
Credits (ECTS) :	**5**	*Semester*	XI	Number of hours per semester (l+e+s)	100 (0+80+20)
Status of the course:	mandatory	*Preconditions:*	Passed all exams of the 5th year	*Comparative conditions:*	
Access to course:	Sixth year students			*Hours of instructions*:	According to schedule
Course teacher:	Assistant professor Zdrinko Brekalo, MD, PhD				
Consultations:	Mondays and Thursdays 13-14h or according to deal				
E-mail address and phone number:	zdrinkobrekalo@hotmail.com				
Associate teachers	- Assistant professor Boris Jelavić, MD, PhD - Assistant professor Antonio Sesar, MD, PhD - Assistant professor Irena Sesar, MD, PhD - Assistant professor Nikica Šutalo, MD, PhD - Assistant professor Mario Jurić, MD, PhD - Assistant professor Vlatka Martinović, MD, PhD - Zoran Trninić, MD, PhD - Josip Mišković, MD, PhD - Kristijan Juka, MD, PhD - Maki Grle, MD, PhD - Goran Lakičević, MD, PhD - Ludvig Letica, MD, MSc - Martina Šoljić, MD, PhD - Violeta Šetka – Čuljak, MD, MSc				
Consultations:					
E-mail address and phone number:					
The aims of the course:	The objectives of this course are to introduce students with the following: - Recognizing emergency surgical conditions and diagnosis - Preparing the patient for emergency surgery - Performing emergency surgical techniques and repairing injuries				
Learning outcomes	General outcomes:				

(general and specific competences):	- Understanding the organization of the Surgery Department, principles of work at the Department, Specialist Outpatient Clinics, Sterilization Unit and Operations Halls. <u>Specific outcomes:</u> - Understanding and applying history taking and writing as well as applying clinical examination of a surgical patient - Applying the work in a surgical outpatient clinic - Applying the work in an emergency surgical outpatient clinic – triage - Applying the surgical procedures as an assistant during the procedures - Remembering the primary wound treatment - Applying the setting of a thick bandage - Applying the placement of urinary catheters, intravenous catheters and infusions, and nasogastric tubes - Applying the joint or body cavity's puncture			
Course content (Syllabus):	The course Surgical Internship consist of seminars, exercises and final exam. The greatest part of the course is dedicated to the practical work.			
Format of instruction (mark in bold)	Lectures	**Exercises**	**Seminars**	**Independent assignments**
	Consultations	Work with mentor	Field work	Other
	Remarks:			
Student responsibilities	Final exam; Attending and active class participation. Students will be evaluated based on: - Active participation in seminars and exercises. - Read the textbooks and develop their own critical reflection on the text and express this opinion.			
Screening student work (mark in bold)	Class attendance	**Class participations**	**Seminar essay**	**Practical training**
	Oral exam	Written exam	**Continuous assessment**	Essay

Detailed evaluation within a *European system of points*

STUDENTS RESPONSIBILITIES	**HOURS**	**PROPORTIONS OF ECTS CREDITS**	**PROPORTIONS OF MARK**
Class attendance and participations	80	2,5	40%
Seminar essay	30	1	10%
Written exam	0	0	0
Oral exam	40	1,5	50%
Further clarification:			

The exam is oral. All those students who weren't absent from classes have the right to approach to the exam. According to the regulations of the study, final grade is obtained: A = 91-100% 5 B = 79 to 90% 4 C = 67 to 78% 3 D = 55 to 66% 2 F = 0 to 54% 1	
Required literature:	1. Kvesić A. et al. Kirurgija. Zagreb: Medicinska naklada; 2016. 2. Tomislav Šoša, Željko Sutlić, Zdenko Stanec, Ivana Tonković et al. Kirurgija. Zagreb: Naklada Ljevak, 2007. 3. Zdravko Mandić et al. Oftalmologija. Zagreb: Medicinska naklada, 2014. 4. Hančević J et al. Lomovi i iščašenja. Naklada Slap, Jastrebarsko 1998. 5. Željko Bumber, Vladimir Katić, Marija Nikšić-Ivančić, Boris Pegan, Vlado Petric, Nikola Šprem. Otorinolaringologija. Zagreb: Naklada Ljevak; 2004.
Optional literature:	1. Prpić I et al. Kirurgija za medicinare: Priručnik za ispite. Školska knjiga, Zagreb 1995.
Additional information about the course	Monitoring methods of teaching quality: - student questionnaire - quality analysis by students and teachers - exam results analysis - report of the office for teaching quality - external evaluation (visit of team for quality control)

Annexes: calendar classes

The number of teaching units	**TOPICS AND LITERATURE**
I.	Title: Emergencies in Pediatric Surgery
	Short description: incarcerated hernia, pylorostenosis, acute scrotum
	Literature: required and optional
II.	Title: Emergencies in Cardiovascular Surgery
	Short description: thrombosis, aortic aneurysms, heart tamponade
	Literature: required and optional
III.	Title: Emergencies in Abdominal surgery
	Short description: Acute abdomen, ileus, acute inflammatory diseases of the abdominal cavity
	Literature: required and optional
IV.	Title: Thorax emergency conditions

	Short description: pneumothorax, traumatic injuries of the chest
	Literature: required and optional
V.	Title: Emergencies in Neurosurgery
	Short description: Subdural and epidural hematoma, CNS bleeding
	Literature: required and optional
VI.	Title: Emergencies in Orthopedics
	Short description: fractures of the locomotor system, dislocations
	Literature: required and optional
VII.	Title: Emergencies in Ophthalmology
	Short description: foreign body in the eye, traumatic perforation injuries
	Literature: required and optional
VIII.	Title: Emergencies in Maxillofacial Surgery
	Short decription: foreign bodies, traumatic injuries
	Literature: required and optional

The name of the Course	**Clinical Rotation: Ginecology**			**Code of the Course**	
Study program Cycle	Integrated study program, medicine			**Year of the study**	VI
ECTS credits:	**5**	*Semester*	XII	Number of hours per semester (l+e+s)	100 (0+80+20)
Status of the Course:	mandatory	*Preconditions:*	Passed all 5th year exams	*Comparative conditions:*	
Access to course:	Sixth year students			*Teaching time:*	According to schedule
Head of course/lecturer:	Professor (Associate) Vajdana Tomić, MD PhD MSc				
Consultations:	According to the appointment.				
E-mail address and phone number:	tomicvajdana5@gmail.com				
Assistants	Vedran Bjelanović, MD, PhD Dragan Soldo, MD, MSc Tatjana Barišić, MD, PhD Marinko Mišić, MD, MSc Ana Dugandžić Šimić, MD, MSc Tanja Krešić, MD, MSc Ana Bošković, MD, MSc				
Consultations:	According to the appointment.				
E-mail address and phone number:					
The objectives of the Course:	The objectives of the Course are: Applying practical skills in Gynecology and Obstetrics.				

<table>
<tr><td></td><td colspan="4"></td></tr>
<tr><td>Learning outcomes (general and specific competences):</td><td colspan="4">General outcomes
• Remembering the possession of personal qualities (team work and personal contribution, interest in work, active listening and build positive relationships with the members of the group).
Specific outcomes
• Understanding the writing and management of medical documentation of pregnant women, woman in labour, puerperae and gynecological patients.
• Remembering the most common gynecological diseases and pathological conditions in pregnancy, labour and puerperium.
• Applying the interpretation of cardiotocographics records.
• Applying the gynecological and obstetric examination on model and/or patient.
• Applying the management of the vaginal delivery and the third and fourth stage of labor on model.
• Applying the cervicovaginal smear taking (Pap test) on model and/or patient and interpretation of cytological findings.
Learning outcomes will be evaluated with continuous assessment and active forms of learning during practice (gynecological and obstetrics anamnesis, general and gynecological examination, pregnant women examination, laboratory test planning, determine treatment or specialist consultation).</td></tr>
<tr><td>Course content (Syllabus):</td><td colspan="4">Practical clinical training (100 hours) and seminars (20 hours) are performed at the Department of Gynecology and Obstetrics. Training is carried out under the assistant supervision.
With supervised practical training, there are seminars that cover important and common topics of gynecology and obstetric. Students present seminar topics under assistant supervision. Assistant encourages and coordinates debate among students.</td></tr>
<tr><td rowspan="3">Form of teaching (mark in bold)</td><td>Lectures</td><td>Practical classes</td><td>Seminars</td><td>Independent tasks</td></tr>
<tr><td>Consultations</td><td>Mentoring</td><td>Outside classes</td><td>Other</td></tr>
<tr><td colspan="4">Remarks:</td></tr>
<tr><td>Students obligations</td><td colspan="4"></td></tr>
<tr><td rowspan="2">Monitoring and evaluation of students work (mark in bold)</td><td>Class attendance</td><td>Class participations</td><td>Seminar essay</td><td>Practical training</td></tr>
<tr><td>Oral exam</td><td>Written exam</td><td>Continuous assessment</td><td>Essay</td></tr>
<tr><td colspan="5">Detailed evaluation within a European ECTS credit transfer system</td></tr>
</table>

STUDENTS OBLIGATIONS	HOURS (EVALUATION)	PROPORTION OF ECTS CREDITS	PROPORTION OF MARK
Class attendance and participations	30	1	
Seminars	30	1	20%
Kolokvij (2) or Written exam	50	1,5	60%
Oral exam	50	1,5	20%

Further clarification:
Exam is taken after positive evaluation of class attendance and participations, and consists of practical (examination of patients with interpretation) and an oral part. Evaluation is descriptively.
According to the regulations of the study, final grade is obtained:
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)

Mandatory literature:	Šimunić V. et al. Gynecology. Zagreb. Naklada Ljevak, 2001. Đelmiš J i sur. Fetal medicine and obstetric. Zagreb. Medicinska naklada, 2014.
Additional literature:	Dubravko H et al. Obstetric surgery. Zagreb. Naklada Ljevak, 2009.
Additional informations about the course	Method of monitoring the quality of teaching: - student questionnaire - students and teachers analysis of the quality of teaching - analysis of exam results - report of the office for quality of teaching - external evaluation (visit of the teams for quality control)

ANNEXES: Calendar classes

The number of teaching units	**TOPICS AND LITERATURE**
I.	Title: Gynecological history and examination
	Short description: gynecological and reproductive history, speculum exam with Pap smear testing, menstrual cycle, gynecological exam in newborns and adolescents, colposcopy, prenatal care.
	Literature: mandatory and additional
II.	Title: Pregnancy diagnosing
	Short description: early diagnosis of pregnancy, laboratory diagnosis of early pregnancy, ultrasound in early pregnancy, first antenatal visit test, antenatal care.
	Literature: mandatory and additional
III.	Title: Antenatal care. Differencial diganosis of seizures in pregnancy.
	Short description: Antenatal screening and diagnosing of chromosomopathy. Eclampsia and seizures of unknown etiology

	Literature: mandatory and additional
IV.	Title: Premature birth
	Short description: Definition, prevalence, etiology, prevention and treatment of premature labour.
	Literature: manadatory and additional
V.	Title: Emergency conditions in pregnancy
	Short description: ectopic pregnancy, placental abruption, pulmonary embolism, amniotic fluid embolism, eclampsia- diganosing and treatment
	Literature: mandatory and additional
VI.	Title: Emergency conditions in gynecology
	Short description: Cysts and adnexal torsion, luteal cyst rupture, genital tract bleeding caused by trauma or carcinoma
	Literature: mandatory or additional
VII.	Title: Diagnostic procedures and prevention of gynecological malignant diseases
	Short description: Pap test, colposcopy, biopsy, US- color doppler, radiological imaging methods (MSCT, MRI), Tumor markers, HPV vaccine.
	Literature: mandatory or additional
VIII.	Title: Drugs in pregnancy.
	Short description: Teratogenicity-teratogenic, FDA categories of drugs in pregnancy.
	Literature: mandatory or additional
IX.	Title: Pathology of puerperium
	Short descripton: Mastitis puerperalis, endometritis, pyelonephritis, sepsis. Thromboembolic disorders in puerperium.
	Literature: mandatory or additional
X.	Title: Contraception
	Short description: contraceptive methods- natural (Billings), barrier methods, hormonal (oral hormonal contraception, morning after pill), intrauterine device, sterilisation.
	Literature: mandatory or additional

Name of the course	**Clinical Rotation: Paediatrics**			**Code**	
Type of study program Cycle	Integrated study program, Medicine			**Year of the study**	VI
Credits (ECTS) :	**5**	*Semester*	XI	Number of hours per semester (l+e+s)	100 (0+80+20)
Status of the course:	mandatory	*Preconditions:*	Passed all exams of	*Comparative conditions:*	

<table>
<tr><td></td><td></td><td></td><td>the 5th year</td><td></td><td></td></tr>
<tr><td>Access to course:</td><td colspan="3">Sixth year students</td><td>Hours of instructions:</td><td>According to schedule</td></tr>
<tr><td colspan="2">Course teacher:</td><td colspan="4">Assistant professor Željko Rončević, MD, PhD</td></tr>
<tr><td colspan="2">Consultations:</td><td colspan="4">As agreed</td></tr>
<tr><td colspan="2">E-mail address and telephone:</td><td colspan="4">zroncevic112@gmail.com</td></tr>
<tr><td colspan="2">Associate teachers</td><td colspan="4">Prim. Vesna Brkić, MD, MSc
Teo Tomić, MD, MSc
Ana Boban- Raguž, MD, MSc
Marijana Jerković-Raguž, MD, MSc
Danijela Kraljević, MD
Prim. Rada Šandrk, MD
Prim. Senada Vujica, MD</td></tr>
<tr><td colspan="2">Consultations</td><td colspan="4"></td></tr>
<tr><td colspan="2">E-mail address and telephone:</td><td colspan="4"></td></tr>
<tr><td colspan="2">Aims of collegium:</td><td colspan="4">Aim of this class is to demonstrate basic skill sets required for working with children in primary medical environment.</td></tr>
<tr><td colspan="2">Outcomes: (basic and specific::</td><td colspan="4">General outcomes:
• Applying the independent learning through the study in the way of critical and self-critical questioning of scientific truth.
• Remembering the possession of personal qualities (team work and personal contribution, interest, active listening, and building positive relationships with members of the group).
Specific outcomes:
• Applying the capabilities to work with patients- children.
• Applying the ability to adequately obtain anamnesis from parents – heteroanamnesis.
• Applying the adequate performance of clinical inspection.
• Evaluation of data obtained by anamnesis and inspection and analyzing laboratory tests which have to be performed.
• Evaluation of data obtained by anamnesis, clinical inspection and lab tests to synthesize work diagnosis.
• Evaluation of all the data in order to determine adequate therapy for a child or to decide where should be patient referred to.</td></tr>
<tr><td colspan="2">Course content (Syllabus):</td><td colspan="4">Pediatric internship collegium consists of 120 school hours divided in, practical work and seminars, which are taking place on Pediatric Clinic and in Mostar Health Care Center. Course is dedicated to practical work with mentors, and individual work on seminars, with accent on most frequent child diseases and conditions.</td></tr>
<tr><td colspan="2" rowspan="3">Format of instruction (mark in bold)</td><td>Lectures</td><td>Practices</td><td>Seminary</td><td>Independent assignments</td></tr>
<tr><td>Consultations</td><td>Work with mentor</td><td>Field work</td><td>Other</td></tr>
<tr><td colspan="4">Remarks:</td></tr>
</table>

Student responsibilities	Attending and actively taking part in practice classes, with mentors, and seminars. Student is allow to be excused from 20% of all classes.			
Screening student work (mark in bold)	**Class attendance**	**Class participations**	**Seminar essay**	**Praktical training**
	Oral exam	**Written exam**	**Continuous assessment**	Essay

Detailed evaluation within a European system of points			
OBVEZE STUDENTA	**HOURS**	**UDIO U ECTS-u**	PROPORTIONS OF MARK
Class attendance and participations	30	1	10%
Seminar essay	40	1.5	20%
Written exam	75	2.5	70%
According to the regulations of the study, final grade is obtained: A = 91-100% points (5) B = 79 – 90% points (4) C = 67 – 78% points (3) D = 55 – 66% points (2) F = 0 – 54% points (1)			
Required literature:	D. Mardešić i sur: *Pedijatrija*, Školska knjiga, Zagreb, 2003.		
Optional literature::	Branko Marinović:Anamneza i klinički pregled djeteta. Školska knjiga Zagreb, 1994		
Additional information about the course	Monitoring methods of teaching quality: - student questionnaire - quality analysis by students and teachers - exam results analysis - report of the office for teaching quality - external evaluation (visit of team for quality control)		

Annexes: calendar classes

The number of teaching units	TOPICS AND LITERATURE
I	Title: Difference between innocent and pathological heat murmurs
	Short description:
	Literature: required
II	Title: Pneumonias
	Short description:
	Literature: required
III	Title: Malabsorption
	Short description:
	Literature: required
IV	Title: Today and tomorrow of pediatric health care
	Short description:
	Literature: required
V	Title: Vaccination
	Short description:

	Literature: required
VI	Title: Chest pain
	Short description:
	Literature: required
VII	Title: Diabetes mellitus type I
	Short description:
	Literature: required
VIII	Title: Asthma
	Short description:
	Literature: required
IX	Title: Anemia
	Short description:
	Literature: required
X	Title: Consciousness disorders
	Short description:
	Literature: required
XI	Title: Febrile convulsions
	Short description:
	Literature: required
XII	Title: Hypertension
	Short description:
	Literature: required
XIII	Title: Abdominal pain
	Short description:
	Literature: required
XIV	Title: Neonatal infections
	Short description:
	Literature: required
XV	Title: Urinary infections
	Short description:
	Literature: required
XVI	Title: Abdominal pain
	Short description:
	Literature: required

Name of the course	**Emergency Medicine with Clinical Rotation**			**Code**	
Type of study program Cycle	Integrated study program, Medicine			**Year of study**	VI
Credits (ECTS) :	**6**	*Semester*	XII	Number of hours per semester (l+e+s)	100 (0+80+20)

Status of the course:	mandatory	*Preconditions:*	Passed all exams of the 5th year	*Comparative conditions:*	
Access to course:	Sixth year students			*Hours of instructions*:	According to schedule
Course teacher:	Professor Mladen Perić, MD, PhD				
Consultations:	According to agreement				
E-mail address and phone number:					
Associate teachers					
Consultations:					
E-mail address and phone number:					
The aims of the course:	The main objective of the course is to introduce students with the most common emergency and life-threatening conditions, and methods of their disposal. 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.				
Learning outcomes (general and specific competences):	• Applying the basics of cardiopulmonary resuscitation. Understanding the causes, pathophysiological events, and disposing algorithms. • Understanding the pathophysiological events in the trauma and the way of treating traumatized patients. Applying the venous path setting, selection of fluids for volume compensation, respiratory support, analgesia. • Remembering the way of treating patients with drowning, electric shock, heat stroke, freezing. • Understanding the pathophysiology and algorithm of treating patients with septic shock. • Remembering the types of allergy reactions with special reference to the anaphylactic reaction. • Remembering the types of poisoning and ways of disposing. • Understanding the causes and the differential diagnosis of choking. • Remembering the causes of bleeding from the gastrointestinal tract. • Understanding the disease expression of patients with bleeding from the upper and lower airways and applying the ways of disposing. • Evaluation of acute chest pain. Understanding the causes and the ways of treatment. • Applying the ways of diagnosing and treating patients with cerebrovascular insults and consciousness disorders. • Remembering the emergency gynecological conditions. • Remembering the emergency pediatric conditions.				

Course content (Syllabus):	The course Emergeny medicine consists of 100 hours of exercises and 20 hours of seminars.			
Format of instruction (mark in bold)	Lectures	**Exercises**	**Seminars**	Independent assignments
	Consultations	Work with mentor	Field work	Other
	Remarks:			
Student responsibilities	Students are required to attend classes, it is allowed to justifiably be absent from 20% of classes.			
Screening student work (mark in bold)	Class attendance	**Class participations**	Seminar essay	**Practical training**
	Oral exam	Written exam	Continuous assessment	Essay

Detailed evaluation within a *European system of points*

STUDENTS RESPONSIBILITIES	**HOURS**	**PROPORTIONS OF ECTS CREDITS**	**PROPORTIONS OF MARK**
Class attendance and participations	120	4	40%
Seminar essay	20	1	10%
Written exam	0	0	0
Oral exam	30	1	50%

Further clarification:
The exam of the course Emergency medicine is carried out in front of Course teacher and is consisted of an oral and practical part.
Conditions for exam approach are a certificate of regular attendance (exercises and seminars), and a filled and signed catalog of clinical skills by a mentor and a student as an evidence of completed Emergency medicine internship.
Completed exam is recorded in index as *Passed*.

Required literature:	Powerpoint presentations (notes from lectures)
Optional literature:	
Additional information about the course	Monitoring methods of teaching quality: - student questionnaire - quality analysis by students and teachers - exam results analysis - report of the office for teaching quality - external evaluation (visit of team for quality control)

Annexes: calendar classes

The number of teaching units	**TOPICS AND LITERATURE**
I.	Title: Cardiopulmonary reanimation

	Short description: The Basics of Cardiopulmonary Resuscitation in adults and children
	Literature: required
II.	Title: Disposal of severely traumatized patients
	Short description: Pathophysiological events in trauma and methods of treatment
	Literature: required
III.	Title: Drowning, electric shock, heat stroke, freezing
	Short description: Pathophysiological events and methods of treatment
	Literature: required
IV.	Title: Septic shock
	Short description: Septic shock pathophysiology and algorithm of treatment
	Literature: required
V.	Title: Anaphylactic shock
	Short description: Types of allergic reactions with special reference to anaphylactic reaction
	Literature: required
VI.	Title: Poisoning
	Short description: Types of poisoning and disposal
	Literature: required
VII.	Title: Choking
	Short description: Causes, differential diagnosis and ways of disposing
	Literature: required
VIII.	Title: Gastrointestinal bleeding
	Short description: Causes and case report
	Literature: required
IX.	Title: The bleeding from the respiratory tract
	Short description: Clinical picture, differential diagnosis and methods of treatment
	Literature: required
X.	Title: Acute Metabolic Disorders
	Short description: Recognition and differential diagnosis
	Literature: required
XI.	Title: Acute Abdomen
	Short description: Differential diagnosis and ways of disposing
	Literature: required
XII.	Title: Chest pain and life-threatening heart rhythm disorders
	Short description: Differential diagnosis and ways of disposing
	Literature: required
XIII.	Title: Hypertensive crisis, CVI, coma
	Short description: Diagnosis and disposal
	Literature: required
XIV.	Title: Emergency Gynecological Bleeding
	Short description: Diagnosis and disposal
	Literature: required
XV.	Title: Emergency Pediatric Conditions

	Short description: Psychotic reactions
	Literature: required

Name of the course	**Diploma Thesis and Final Exam**				**Code**	
Type of study program Cycle	Integrated study program, Medicine				**Year of study**	VI
Credits (ECTS) :	**4**	*Semester*	XII		Number of hours per semester (l+e+s)	100 (0+100+0)
Status of the course:	required	*Preconditions:*		*Comparative conditions:*		
Access to course:	Sixth year students			*Hours of instructions*:		According to schedule
Course teacher:	Head: dr.sc. Marko Martinac					
Consultations:	Mondays and Thursdays from 9 to 10 or according to the deal					
E-mail address and phone number:	marko.martinac@tel.net.ba 0038736335600					
Associate teachers	Prof. Violeta Soljic Prof. Danijel Pravdic					
Consultations:	Mondays and Thursdays from 9 to 10 or according to the deal					
E-mail address and phone number:	mef@sum.ba 0038736335600					
The aims of the course:	This course will introduce student to define their research purpose, to divide the main aim into several sub-aims. Afterward the students poses research questions or hypotheses to which they will try to provide well-grounded answers during their research. With the elaboration of the thesis the student must demonstrate the ability to apply theoretical and practical knowledge to an independent discussion of a current expert topic.					
Learning outcomes (general and specific competences):	On completion of the course, the student should achieve general and specific outcomes: 1. Identify and name the basic determinants of scientific research methodology and writing a science paper 2. Set a science research hypothesis independently 3. Independently choose and argue the adequate methodological approach to establish, formulate and critically evaluate own research 4. Recognize the basic ethic principles of scientific research and writing scientific papers 5. Critically choose and use relevant literature 6. Verbally present own scientific research results Outcomes will be evaluated with continuous assessment of thesis plan and oral presentation of diploma thesis and the final exam.					

Course content (Syllabus):	Course contents include students' independent work with the mentor supervision (100 hours). Immediate teaching consisting of 20 hours of exercises is dedicated to making and grading the final form of thesis.			
Format of instruction (mark in bold)	Lectures	**Exercises**	Seminars	Independent assignments
	Consultations	Work with mentor	Field work	Other
	Remarks: The teaching is given as individual consulatations with the mentor of thesis and exercises.			
Student responsibilities	Students will be evaluated based on the Rules of studying and Deontological code for MEFMO students.			
Screening student work (mark in bold)	Class attendance	Class participations	Seminar essay	Practical training
	Oral exam	**Written exam**	Continous assesment	Essay

Detailed evaluation within a *European system of points*

STUDENTS RESPONSIBILITIES	**HOURS**	**PROPORTIONS OF ECTS CREDITS**	**PROPORTIONS OF MARK**
Class attendance and participations	0	0	
Seminar essay	0	0	
Written exam	20	1	50%
Practical work	80	3	50%

The quality of graduation thesis and public thesis defense is graded.
Graduation thesis quality is graded with 0-50 points, and public thesis defense is graded with 0-50 points.
Grades: sufficient 56-65 points, good 66-75 points, very good 76-85 points and excellent 86 and more points.

Required literature:	Day RA, Gastel N. How to write and publish a scientific paper. 7 ed. Cambridge (UK): Cambridge Univerisity Press;2012.
Optional literature:	
Additional information about the course	Students' responsibilities are in accordance to Rules of studying and Deontological code of MEFMO students. Methods of monitoring the quality of teaching: student survey Quality control analysis by the students and teachers Analysis of passing the exam The report of the Office for the quality of teaching