UNIVERSITY OF SPLIT

SCHOOL OF MEDICINE

ELABORATE PROGRAM DESCRIPTION

EVIDENCE-BASED MEDICINE

SPLIT, October 2016

BASIC INFORMATION ON THE HIGHER EDUCATION INSTITUTION

Higher education institution	School of Medicine
Address	Šoltanska 2
Phone	021 557 800
Fax	021 557 895
E-mail	office@mefst.hr
Website	www.mefst.hr

GENERAL INFORMATION ON THE STUDY PROGRAM

Study program	**Evidence-based Medicine**		
Program provider	University of Split School of Medicine		
Program co-provider			
Type of study program	Professional study program ☐	University study program **x**	
Study program level	Undergraduate ☐	Graduate ☐	Integrated ☐
	University postgraduate **x**	Specialist postgraduate ☐	Specialist graduate ☐
Academic/professional title earned upon the program completion	Doctor of Science (Dr. Sc.), equivalent to Ph.D.		

1. INTRODUCTION

1.1. Justification for program delivery

List the reasons for launching the study program, especially its purpose with respect to labor market needs, and how it is associated with the current scientific knowledge.

The main reason for launching the "Evidence-based Medicine" program is to stimulate the development of applied clinical research that contributes to our understanding of the pathogenesis of disease, improves diagnosis, therapy, and prevention of disease, and increases the reliability of prognosis. Such research is translational research, which transfers the basic research results into clinical practice and integrates these results with clinical experience and patient characteristics.
Evidence-based medicine (EBM) incorporates all these characteristics of applied clinical research. EBM is a deliberate, clear, and meaningful use of current best evidence in making decisions about the care for individual patient, including etiopathogenesis, prognosis, diagnosis, therapy, and prevention of disease. EBM process consists of finding research results, their critical appraisal with respect to reliability, clinical validity and applicability, their use and assessment of how successful they proved to be in improvement of patient care. Thus, EBM is a bridge between basic and clinical biomedical disciplines, because it meaningfully and critically transfers basic biomedical knowledge into clinical practice.
EBM offers unbiased and meaningful approach to a research problem, critical formulation of a problem and research hypothesis, and evaluation and interpretation of results. As such, it provides an adequate framework for clinically oriented doctoral study program.

The School of Medicine in Split has decided to expand the list of postgraduate doctoral studies offered in Croatia. Two doctoral study programs, one in applied physiology and one in biology of tumors, were launched at our School in 2006, in accordance with the third cycle of Bologna Process regarding the tertiary-level education. We now propose launching of the third doctoral study program in clinical medicine, which was originally started in 2000 as a branch of an old program "Basic and Clinical Medical Sciences" but has been renamed into "Evidence-Based Medicine" program.

EBM is part of postgraduate studies at many prestigious medical schools worldwide, e.g. at the Evidence Based Medicine Centre, Institute of Health Sciences Oxford, UK, and McMaster University, Hamilton, Canada, and taught in various class formats and through interuniversity collaboration with a support from governmental institutions (e.g. National Institute of Health, USA). This speaks of the importance and actuality of EBM at the global level.

Nowadays, biomedicine is going through a sort of crisis of academic clinical medicine, which includes clinical research and teaching, unlike basic biomedical knowledge, which sees huge progress. Such a situation has provoked discussion at the global level about the state and further development of clinical medicine. EBM provides a critical appraisal of scientific knowledge with respect to its clinical applicability and stimulates translational research directed at the use of basic biomedical knowledge in clinical practice. This type of research has become a strategic determinant at many prestigious medical schools, such as Stanford University School of Medicine.

1.2. Connectedness to local community (economy, entrepreneurship, civil society...)

There has been no organized approach to EBM in our setting. Undergraduate and postgraduate programs at our medical schools do not offer training in EBM, except for one course (Evidence-based Medical Practice, 16 hours) within a doctoral program “Biomedicine and Healthcare” at the University of Zagreb School of Medicine. Neither medical schools nor university hospitals provide organized forms (centers, committees) of support and implementation of EBM and healthcare quality. This fact shows only how much we lag behind the global strivings and speaks for the justifiability of the doctoral program “Evidence-based Medicine”. In that respect, establishing a collaborative research cooperation between university hospitals in Croatia will stimulate the future development of joint clinical research with both public and private healthcare institutions.

1.3. Alignment with requirements of professional associations

EBM is interactively associated with healthcare quality assessment and improvement, because it includes critical appraisal of methods, i.e., application of research results in clinical practice. In addition, assessment of conditions and methods for improvement and evaluation of the results in the healthcare quality improvement system also use EBM methods.

Systematic use of EBM and healthcare quality improvement are prerequisite for the development of modern clinical medicine and healthcare in general. One of the goals of the doctoral study program is to build a core of competent scientist and researchers who will stimulate the use of EBM and healthcare quality improvement methods in our setting and everyday clinical practice.

The program is organized so as to confer the most recent scientific knowledge and skills based on that knowledge, and it is comparable to the programs provided in EU countries. As noted previously, EBM is part of postgraduate studies at many prestigious medical schools worldwide, which speaks of the importance and actuality of EBM at the global level. The modern development of academic clinical medicine, unlike the immense progress of basic biomedical knowledge, depends on the integrative forces throughout the area of biomedicine. These forces take shape through translational research that leads to the application of basic biomedical knowledge in clinical practice and through critical assessment of research results in respect of their clinical usability, which is an important characteristic of EBM. Since biomedicine is one of the national strategic scientific priorities, competences acquired in the proposed study program are important for the development of clinical medical science in Croatia.

1.4. Partners outside the higher education system

The following institutions outside the system of higher education have expressed interest in the doctoral study program:

Split University Hospital Center, Spinčićeva 1 i Šoltanska 1
Teaching Institute of Public Health of Split-Dalmatia County, Vukovarska 46
Healthcare Center of Split-Dalmatia County, Kavanjinova 2
Institute of Emergency Medicine of Split-Dalmatia County, Spinčičeva 1
Institute of Naval Medicine in Split**,** (previously, Institute of Maritime Medicine, Croatian Nary) Šoltanska 1

1.5. Funding

The annual tuition fee is 20,000.00 HRK per student. With 20 students enrolled, the anticipated revenue from tuition fees is 400,000.00 HRK.

Funding sources: tuition fees for all doctoral candidates employed as assistants at the School of Medicine are covered by the School. Part of the students engaged on research projects funded by the Croatian Science Foundation have their tuition fees for postgraduate education covered from the project's financial resources as planned. However, majority of students cover the tuition fees themselves.

The faculty delivering the program mostly come from Split, but there are also faculty members from Zagreb, Rijeka, and scientific institutions abroad. Visiting and foreign faculty have their travel and local expenses covered, whereas the faculty from other parts of Croatia also receive honorary fees. The classes delivered by the School's faculty are included in their standard quota of teaching hours; if the number of teaching hours exceeds the standard quota of teaching hours, these excess hours are paid accordingly. Most visiting professors are accommodated at the School's facility (10 rooms), Student Dormitory at Spinut (20 rooms), and University Campus (7 rooms). Travel expenses of the faculty delivering doctoral courses are covered, as well as the local expenses of the members of expert committees for public discussions on doctoral dissertation topic proposals or dissertation defenses.
According to the School's previous Regulations on the Use of Income and Revenue for Special Purposes, part of the revenue from tuition fees was used for improvement of the study program, education at foreign institutions, participation at scientific meetings, and purchase of chemicals needed for doctoral research. In the last few years, according to the current Regulations, all funds from tuition fees are at the School's disposal. However, the procedure requires the Administrative Office's approval of any planned expenses, which complicates providing financial support to doctoral students and is often the main obstacle to conducting doctoral research and consequent completion of degree.

1.6. Comparability of the study program to the programs at other accredited higher education institutions in Croatia and European Union

1. DPhil in Evidence-Based Health Care University of Oxford. The study program is the extension of the postgraduate master's program (MSc) Evidence-Based Health Care. In the master's part of the program, students attend organized classes, whereas in the doctoral part, they prepare their doctoral dissertations. The total duration of the study program is 6 to 8 years for part-time students. The proposed study program "Evidence-based Medicine"" is similarly organized. The classes organized and competences acquired by the students in the first two years of the program correspond to the master's part of the study program at Oxford. Thereby follows the preparation of doctoral dissertation under mentor's leadership, which is comparable to the Ph.D. part of the study program at the University of Oxford.

https://www.ox.ac.uk/admissions/graduate/courses/dphil-evidence-based-health-care

2. Clinical epidemiology PhD, University of Leiden. EBM is an essential part of clinical epidemiology, because it is about the use of clinical-epidemiological methods in assessment of evidence in medical decision making. Therefore, our doctoral study program "Evidence-based medicine" corresponds to the Clinical Epidemiology PhD program at the University of Leiden.

https://www.on-course.eu/courses/clinical-epidemiology-phd/

1.7. Program openness to student mobility (horizontal, vertical within Croatia and internationally)

Similar to the previous doctoral study program, the proposed study program is connected to other similar study programs in Croatia through the cooperation agreement between all medical schools. Since the program is partly delivered in English and the first generation of 20 students will all be Croatian speakers, it is possible that a few visiting students from Croatia and abroad will attend part of the doctoral program. The *European Credit Transfer System* (ECTS) potentiates student mobility.

1.8. Alignment with the mission and strategy of the University and program proposer and with the strategic document of the higher education institution network

The Research Development Strategy of the University of Split School of Medicine (MEFST) 2014-2020 (hereinafter: the Strategy) anticipates the stimulation of clinical research (II.3.3., Addendum 3) through translational research in cooperation with the Split University Hospital Center (II.4.4). The Strategy also anticipates the founding of the Clinical Epidemiology Center (CEC), *which will link the existing EBM doctoral program, EBM specialist program, the final-year course in Clinical Epidemiology, and the School and Split University Hospital Center's joint office for promotion of Clinical Epidemiology* (3.3.6).

Scientific and professional excellence is the backbone of the MEFST Development Strategy ("The School's Vision is to promote the excellence of medical profession by integrating research, teaching, and professional activities, with a goal to foster accomplishment of optimum knowledge and skills and develop responsibility and ethical standards in the students – the future healthcare professionals in the service of community."). Knowledge of clinical epidemiology and EBM and their application are precondition for achieving clinical scientific and professional excellence at institutional as well as individual level. Therefore, the doctoral study program "Evidence-based medicine" is an essential factor in accomplishing the Vision expressed in the Strategy.

Since biomedicine is one of the national strategic scientific priorities, competences acquired in this study program are important for the development of clinical medical science in Croatia.

1.9. Previous experience in delivering equivalent or similar study programs

Prof. Željko Dujić was the director of the master's and doctoral studies organized by the School of Medicine in Split from 1999/2000 to 2007.

Academician Stjepan Gamulin was the Chair of Master's and Doctoral Program Committee at the School of Medicine in Split from 2000 to 2015, and he performed the same function at the School of Medicine in Zagreb from 1988 to 2000.

In 1999/2000, the School of Medicine in Split launches the study program "Basic and Clinical Medical Sciences" consisting of three lines of studies: Clinical Physiology, Sports Medicine, and Clinical Medicine. The program director was Prof. Željko Dujić. At the time, biomedical postgraduate programs at medical schools in Zagreb and Rijeka were oriented toward basic medical sciences and, practically, there was no systematic education of clinical scientists.

From 1999 to 2007, a total of 318 students enrolled in postgraduate studies: 277 opted for Clinical Medicine, 19 for Clinical Physiology, and 22 for Sports Medicine; 152 students completed the doctoral program coursework, and 166 completed the master's program coursework.

Over 60% of the students earned their degree, which is significantly more than at other similar doctoral programs in Croatia at the time and today. Due to these, over 100 doctorates, our Hospital regained the status of the University Hospital Center. Many of these doctors of science are now heads of departments and clinics at the Split University Hospital Center and professors and faculty at our School

„Evidence-based Medicine" program is a sort of continuation of the postgraduate program "Basic and Clinical Medical Sciences".

2. PROGRAM DESCRIPTION

2.1. General information

Scientific/artistic area of the study program	Biomedicine and Healthcare, Clinical Medical Sciences
Program duration	3 years
Minimum ECTS credits required to complete the program	180
Application requirements and enrollment process	For enrollment in the first year of the studies, the following documents/statements are required: - University doctoral program application form - Written statement on reasons for applying to doctoral studies (description of one's research interest, reason for choosing a particular research institution, future plans, 1 text page) - Official transcript (completed 6-year program of medical studies, grade point average ≥3.5) - Interview with several scientists Students are selected through publicly invited applications and on the basis of analysis of above-listed documents/statements.

2.2. Study program learning outcomes (list 15 - 30 learning outcomes)

To describe the goal, purpose, and methods of evidence-based medicine and outline its scope and limitations. To formulate a meaningful clinical question, collect scientific evidence, appraise critically the results of individual research studies, and review critically the collected evidence. To assess the significance of evidence-based medicine for everyday clinical practice and plan the use of evidence in clinical practice. To evaluate online sources containing information on evidence-based medicine and appraise critically their content.

To provide the definitions of accuracy of diagnostic test; calculate the sensitivity, specificity, predictive values, and positive and negative likelihood ratios; and select the best diagnostic test for use in clinical practice. To reexamine the results of research on risk factors and causes of health outcomes and compare patient survival depending on the treatment method. To calculate positive and negative treatment effects and, on the basis of the results obtained, choose the most appropriate treatment method for patients with particular health conditions. To describe the criteria of causality and assess the effectiveness of preventative activity for an individual and entire population. To evaluate the disease burden of the leading health risks and diseases.

Understanding the characteristics of research designs in biomedical area. Understanding the differences between different research designs, their advantages and disadvantages, the ability of designing independently one's own research study for the needs of writing a research paper and dissertation. To identify, describe, and explain the advanced statistical analysis methods and research errors. To appraise critically if data analyses described in research papers are appropriate from the statistical analysis point of view.

To demonstrate acquired knowledge and skills by independently evaluating research papers in order to answer the clinical questions encountered in everyday clinical work. To demonstrate the use of

EBM calculator for quick and simple evidence assessment. To create a successful research plan that will result in a convenient and reliable outcome of writing one's own research paper and doctoral dissertation.

2.3. Employability

Special attention will be dedicated to ensuring that the students acquire practical knowledge in EBM analytical techniques and skills needed for finding employment outside academic institutions. The candidates enrolled in the proposed program will be able to find employment outside academic domain in biomedical, biotechnological, food and pharmaceutical companies.

2.4. Possible continuation of studies at the higher level

2.5. Completed study program/s of lower-level providers or other institutions in Croatia acceptable as prerequisite for enrollment in the proposed study program

The study program can be enrolled if medical school or other school in the area of biomedicine and healthcare (all fields and branches) or related fields was completed.

2.6. Study requirements and options

Students have to take all courses as planned and take exams thereafter. Having passed all the exams from the courses taken in the first year is the requirement for the enrollment in the second year of the studies. Before the end of the first year of the studies, full-time students are appointed a mentor. Part-time students get mentors by the end of the third semester. The requirement for enrollment in the third year of the studies is having passed the second-year exams.

Enrollment in the first year of the studies requires the following documents/statements:

- University doctoral program application form
- Written statement on reasons for applying to doctoral studies (description of one's research interest, reason for choosing a particular research institution, future plans, 1 text page)
- Official transcript (completed 6-year program of medical studies, grade point average ≥3.5)
- Interview with several scientists.

In the first year of their studies, students have to take mandatory courses in the field of evidence-based medicine and pass the exams, which earns them a total of 30 ECTS credits. In the second year of their studies, students have to take two mandatory courses (Medical Ethics and Doctoral Dissertation Topic Proposal II) and elective courses and pass the exams, which earns them a total of 15 ECTS credits. In the third year of the studies, students are expected to pass the Doctoral Dissertation Topic Proposal IIII exam, perform mandatory rounds of laboratories and other work sites, attend two public discussions on doctoral topic proposal and one doctoral dissertation defense, and produce two critical appraisals of research papers using CAT (critical appraisal tools).

Mandatory courses provide knowledge needed for understanding and using EBM and for understanding the meaning and general methodology of research, especially in clinical fields.

Approximately 80% of elective courses are focused at the use of EBM in particular clinical specialties, and 20% are methodological. As a rule, specialized elective courses are conceived so as to enable students to master EBM methods on clinically important problems, either given or chosen, including the use of EBM in specific clinical disciplines (specific databases, websites, journals), and understand the importance of comprehensive approach to a problem from basic, clinical, and public health points of view.

The classes are delivered in the form of lectures, seminars, laboratory rounds, journal clubs, and practical work. Lectures account for the smallest part of the classes and serve to deliver a concise review of the problems that are further elaborated in seminars and practical work. Seminars are based on problem-solving approach using EBM methods, and practical work is intended to help students

acquire particular skills. In courses that do not use critical appraisal of evidence (scientific articles) by use of EBM methods, some of the seminars are organized as journal clubs.
Students have to perform mandatory laboratory rounds and rounds of other research work sites during the first two years of their studies. The purpose of laboratory rounds at the Split University School of Medicine and Hospital Center is to introduce students to research methods and work of individual research teams.
The greatest part of student activities consists of direct research on the topic of doctoral dissertation, which is evaluated on the basis of mentor's report (enclosed) and published research papers.

Dissertation topic proposal should contain one original research paper describing the original research study published in a journal with the impact factor higher than 1 and indexed in Current Contents (CC) or Web of Science (WoS) databases in the category of the dissertation topic. The candidate has to be the first (or co-first) author on the paper.

Before submitting the finished dissertation for evaluation, the candidate should have published the second paper in the research branch on which the candidate is the first author (or co-first author) and provide the PubMed DOI number or galley proof, i.e. the print-out of the electronic version of the paper. The paper has to be published in a CC- or WoS-indexed journal with an impact factor higher than 1.

2.7. System of advising and guiding through the program

The Program Council recommends to the Doctoral School Council the enrollment plan, takes care of the quality and successfulness of the studies, meets with students and their mentors at least once a year, summons, advises, helps, and encourages insufficiently successful candidates and their mentors, submits a written annual report on its work to the Doctoral School Council containing the following information: analysis of performance of each student (passed exams, topic proposal, research progress, preparation and publication of research papers, preparation and defense of dissertation) and statistical indicators of the program performance.

The Program Director calls up and chairs the meetings with mentors and students and at least once a semester holds a meeting with all students in the same program, whereas the Deputy Director advises the students on what elective courses to choose.

Student may receive help with progress through the doctoral or specialist program from a tutor appointed by the Program Council.

In the process of doctoral dissertation topic proposal, the Faculty Council appoints a mentor. A mentor is responsible for supervising the successful topic proposal, research conduct, and completion and defense of candidate's dissertation. The mentor and student submit an annual report on research progress to the Program Council.

Doctoral Program Council and expert committees for evaluation of topic proposal and doctoral dissertation provide feedback to the students about topic proposal or dissertation shortcomings and suggest revisions and how to improve the topic proposal and dissertation.

2.8. Courses from other programs that students may take

Students may choose a certain number of elective courses from other national or international doctoral programs. Similar to the previous doctoral program, the proposed program is connected to other similar programs in Croatia through a signed cooperation agreement between all medical schools in Croatia.

2.9. Courses that may be delivered in foreign language

The program is delivered in Croatian or English language.

2.10. Criteria and requirements for ECTS credit transfer

Students who take and pass exams from courses/modules from other programs can transfer the ECTS credits.

A student earns 60 ECTS for a completed postgraduate specialist program, and 30 ECTS for a postgraduate professional program within the residency training.

Credits earned at postgraduate professional programs within residency training may replace only ECTS credits earned in elective courses.

The degree of Master of Science earns 60 ECTS credits.

The decision on transfer of ECTS credits is recommended by the Program Council in agreement with the Doctoral School Council.

2.11. Degree completion

Degree completion	Final thesis x Diploma thesis ☐	Final exam ☐ Diploma exam ☐
Requirements for final/diploma thesis or final/diploma exam	Dissertation topic proposal should contain one original research paper describing the original research study published in a journal with the impact factor higher than 1 and indexed in Current Contents (CC) or Web of Science (WoS) databases in the category of the dissertation topic. The candidate has to be the first (or co-first) author on the paper. Candidates whose dissertation received a positive evaluation from the Faculty Council may publicly defend the dissertation after having fulfilled all the requirements for dissertation defense. Before submitting the finished dissertation for evaluation, the candidate should have published the second paper in the research branch on which the candidate is the first author (or co-first author) and must provide the PubMed DOI number or galley proof, i.e. the print-out of the electronic version of the paper. The paper has to be published in a CC- or WoS-indexed	
Process of evaluation of final/diploma exam and evaluation and defense of final/diploma thesis	The evaluation process is performed by the School's Doctoral Program Council in accordance with the provisions of the valid Regulations on University Postgraduate Studies and Doctoral Graduation Process.	

2.12. Mandatory and elective courses

COURSE LIST							
Year of the program: 1							
Semester: 1 and 2							
STATUS	CODE	COURSE	HOURS PER SEMESTER				ECTS
			L	S	P	T	
Mandatory	MEBO01	Introduction to evidence-based medicine	1	5		6	0.5
	MEBO02	Introduction to research in medicine	3	9	4	16	2
	MEBO03	Methodology of clinical research	3	9		12	2
	MEBO04	Clinical biostatistics	12	22	12	46	4
	MEBO05	Medical information search	1	3	4	8	1.5
	MEBO06	Quantitative methods in clinical research	6	10		16	2.5
	MEBO07	Clinical research and measurement	4	12	12	28	3
	MEBO08	Evidence-based medicine	2	12		14	3
	MEBO09	Healthcare quality, assessment and improvement	14			14	2.5
	MEBO08A	Evidence-based medicine in clinical practice	4	4		8	1.5
	MEBO11	Writing a research paper	2	4	9	15	2
	MEBO12	Writing research projects	8	4		12	2
	MEBO13	Doctoral dissertation topic proposal	2	2		4	0.5
	MEBO14	Approach to research in biomedicine	3	3		6	1
	MEBO22	Evidence-based global health	4	6	5	15	2
	Mandatory total		**69**	**105**	**46**	**220**	**30**
Elective							
	The number of elective courses to be taken – no elective courses in the first year of the studies						

COURSE LIST							
Year of the program: 2							
Semester: 3 and 4							
STATUS	CODE	COURSE	HOURS PER SEMESTER				ECTS
			L	S	P	T	
Mandatory	MEBO10	Ethics in clinical research	4	4		8	1.5
Mandatory	MEBO06	Doctoral dissertation topic proposal II	1	4			0,2
	MEBI03	Evidence-based surgical treatment of sleep breathing disorders	1	10		11	2
	MEBI04	Evidence-based surgery	2	8		10	1.5
	MEBI05	Evidence-based rheumatology	2	6	2	10	1.5
	MEBI06	Evidence-based radiological diagnosis of breast cancer	2	8		10	1.5
	MEBI07	Minimally invasive surgery in the treatment of malignancies	1	10		11	2
	MEBI08	Forensic medical approach to assessment and treatment of inpatients	2	8		10	1.5
	MEBI09	The role of physician in prevention of torture and inhuman or degrading treatment	2	8		10	1.5
	MEBI11	Evidence-based pediatrics	1	10		11	2
	MEBI16	Evidence-based neuroophthalmology	2	8		10	1.5
	MEBI18	Genotypization and phenotypization in glycomedicine		8	2	10	1.5
	MEBI20	Evidence-based molecular medicine	2	8		10	1.5
	MEBI24	Evidence-based obstetrics	2	10		12	2
	MEBI25	Evidence-based nephrology	4	6		10	2
	MEBI26	Evidence-based dermatology	2	8		10	1.5
	MEBI27	Evidence-based oncology – breast cancer - diagnosis, treatment, and follow up	2	8		10	1.5
	MEBI28	Psychotherapy in the era of neuroscience	4	8		12	2
	MEBI29	Evidence-based obstetrics	2	8		10	1.5
	MEBI30	Sleep apnea	2	10		12	2

	MEBI31	Gastrointestinal precancerous lesions	2	8		10	1.5
	MEBI32	Neurology - Evidence-based basal ganglia diseases	2	10		12	2
	MEBI33	Restless legs syndrome (RLS)	2	10		12	2
	MEBI34	Etiopathogenesis of oxidative stress and mechanisms of protection	2	6	2	10	2
	MEBI35	Genes and signaling	2	8		10	1
	MEBI36	Physiology of diving	3	8		11	2
	MEBI37	Blood flow regulation	3	8		11	2
	MEBI40	Endocytic pathway in disease	2	10		12	2
	MEBI41	Molecular basis of bone disorders	2	8		10	1.5
	MEBI42	Modern approach to diagnosis and treatment of interstitial lung diseases	1	10		11	2
	MEBI43	Evidence-based infectious diseases - influenza	2	10		12	2
	MEBI45	Neurologic emergencies I and II	4	20		24	4
	MEBI47	Hospital „superbugs“	3	8		11	2
	MEBI48	Prevention of cardiovascular diseases	2	10		12	2
	MEBI49	Evidence-based cardiology- modern diagnosis and treatment of heart failure	5	5	5	15	2.5
	Elective total						
	The number of elective courses to be taken – in addition to mandatory courses, chosen elective courses have to earn 15 ECTS credits						

COURSE LIST							
Year of the studies: 3							
Semester: 4 and 5							
STATUS	CODE	COURSE	HOURS PER SEMESTER				ECTS
			L	S	P	T	
Mandatory	MEBO06	Doctoral dissertation topic proposal III	1	4		5	0.5

2.13. Opis predmeta

COURSE	INTRODUCTION TO EVIDENCE-BASED MEDICINE						
Code	MEBO01	Year of the program	1.				
Course director/s	Academician Stjepan Gamulin, Assist. Prof. Dr. Sc. Ivana Kolčić	Credits (ECTS)	0.5				
Associate faculty	Prof. Dr. Sc. Željko Dujić	Types of class (number of hours per semester)	L	S	P	T	
			1	5		6	
Course status	Mandatory	Percentage of e-learning	0%				

COURSE DESCRIPTION						
Course objectives	To introduce students to the meaning of evidence-based medicine (EBM) in everyday clinical practice and research conduct; to introduce students to the study program with respect to components of the evidence-based medicine					
Course enrollment requirements and initial competencies required for the course						
Expected learning outcomes at the course level (4 to 10 learning outcomes)	To describe the basic characteristics of evidence-based medicine, assess the significance of evidence-based medicine for everyday clinical practice, evaluate online information sources containing evidence-based medical information and critically appraise their content, to demonstrate the use of EBM calculator for evidence assessment.					
Course content per type of class and number of class hours	Significance, scope and limitations of evidence-based medicine, study program with respect to components of evidence-based medicine (3P). Information on EBM, internet search, online articles (4S), discussion on collected information (1S).					
Types of class:	☒ lectures ☒ seminars and workshops ☐ practicum ☐ *full online course* ☐ combined e-learning ☐ field work		☐ independent work tasks ☐ multimedia ☐ laboratory ☐ mentoring ☐ (other)			
Student obligations						
Student performance follow-up (provide ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)*:*	Class attendance	0.5	Research		Practical work	
	Experimental work		Report		(other)	
	Essay		Seminar paper	0.5	(other)	
	Tests		Oral exam		(other)	
	Written exam		Project		(other)	
Grading and evaluating student performance in class and at the final exam	Independent seminar paper					
Required literature (available in the	**Title**				**Number of copies in**	**Availability via other media**

library and via other media)		**the library**	
	Sackett D. L. I SUR. Evidence-based medicine: what it is and what it isn't. BMJ 1996;312: 71-72.		http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2349778/pdf/bmj00524-0009.pdf
	Gamulin S. Klinička istraživanja- klinička epidemiologija, Medicinska naklada, Zagreb, 2015	20	
	Centre for Evidence Based Medicine , Toronto: http://ktclearinghouse.ca/		
	CEBM - Centre for Evidence Based Medicine , Oxford: http://www.cebm.net/		
	The Cochrane Collaboration: http://www.cochrane.org/		
	Trip Database - For Evidence Based Medicine (EBM): http://www.tripdatabase.com/		
Additional literature	1. Straus et al: Evidence-Based Medicine, 3rd Edition.: http://web.squ.edu.om/med-Lib/med/net/ebm-net/Straus/home.htm		
Quality assurance methods to ensure achievement of learning outcomes	▪ Teaching quality evaluation by students and faculty ▪ Analysis of exam pass rates ▪ Reports of the Committee for Control of Teaching Delivery ▪ Extramural evaluation (by quality control teams from the National Quality Assurance Agency, inclusion in TEEP)		
Other (in Course proposer's opinion)			

COURSE	INTRODUCTION TO RESEARCH IN MEDICINE								
Code	MEBO02	Year of the program	1.						
Course director/s	Prof. Dr. Sc. Zoran Đogaš	Credits (ECTS)	2						
Associate faculty		Types of class (number of hours per semester)	L	S	P	T			
			3	9	4	16			
Course status	Mandatory	Percentage of e-learning	20%						
COURSE DESCRIPTION									
Course objectives	Scientific thinking, types of study designs, planning a research study, problem identification, formulating a hypothesis, quality of hypothesis, data collection, data evaluation and analysis, critical assessment of data, possible presentations of data and selection of appropriate presentation of one's own data.								
Course enrollment requirements and initial competencies required for the course	Enrolled in the first year of the doctoral program								
Expected learning outcomes at the course level (4 to 10 learning outcomes)	To define and describe study designs To analyze scientific way of thinking in solving clinical problems To explain purpose and objectivity of approach to research and practical problem in medicine To explain critically one's own data, data analysis and presentation To describe the entire process of preparing a scientific work								
Course content per type of class and number of class hours	Scientific thinking (1L). Types of study designs, planning a research study, variables, control groups, principles of statistical thinking, bias and confounding, clinical research (2L) Identification of a problem for one's own research, hypothesis (2S). Planning a research to test the given hypothesis (4P). Critical assessment of a research plan, all groups together (3S) Journal club (4S)								
Types of class:	☒ lectures ☒ seminars and workshops ☒ practicum ☐ full *online course* ☐ combined e-learning ☐ field work	☐ independent work tasks ☐ multimedia ☐ laboratory ☐ mentoring ☐ (other)							
Student obligations	Class attendance								
Student performance follow-up (provide ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)*:*	Class attendance		Research	0.5	Practical work				
	Experimental work		Report		(other)				
	Essay		Seminar paper	1	(other)				
	Tests		Oral exam		(other)				
	Written exam	0.5	Project		(other)				
Grading and evaluating student performance in class and at the final exam	Evaluation of student's own research plan								

	Title	Number of copies in the library	Availability via other media
Required literature (available in the library and via other media)	Summaries of lectures and seminars		
	Marušić M i sur. Introduction to research in medicine, Zagreb, Medicinska naklada, 2004.		
	Đogaš Z. Presentation of data. In: Marušić M, editor. Planning and writing in medical research. Zagreb: Medicinska naklada; 2007.: in print.		
	Đogaš Z. Teaching scientific methodology at a medical school: experience from Split, Croatia. Natl Med J India. 2004;17:105-7.		
Additional literature			
Quality assurance methods to ensure achievement of learning outcomes	▪ Teaching quality evaluation by students and faculty ▪ Analysis of exam pass rates ▪ Reports of the Committee for Control of Teaching Delivery ▪ Extramural evaluation (by quality control teams from the National Quality Assurance Agency, inclusion in TEEP)		
Other (in Course proposer's opinion)			

COURSE	METHODOLOGY OF CLINICAL RESEARCH					
Code	MEBO03	Year of the program	1			
Course director/s	Prof. Dr. Sc. Eduard Vrdoljak	Credits (ECTS)	2			
Associate faculty	Assist. Prof. Dr. Sc. Tomislav Omrčen, Assist. Prof. Dr. Sc. Marijo Boban Assist. Prof. Dr. Sc. Branka Petrić Miše Assist. Prof. Dr. Sc. Tihana Boraska Jelavić Dr. Marija Ban Mr. Sc. Lidija Bošković	Types of class (number of hours per semester)	L 3	S 9	P	T
Course status	Mandatory	Percentage of e-learning	0%			

COURSE DESCRIPTION	
Course objectives	To explain the role and importance of clinical research in evidence-based medicine; translation of knowledge; to understand the paradigm of clinical research; to define an idea, prepare the proposal for a clinical trial project and protocol; research study conduct; analysis and publication of results.
Course enrollment requirements and initial competencies required for the course	
Expected learning outcomes at the course level (4 to 10 learning outcomes)	To explain the role and importance of clinical research in evidence-based medicine; To use translational knowledge; To review the paradigm of clinical research; To summarize the ideas, to plan, design, and present the proposal for a clinical trial project and protocol; To conduct a research study, To assess critically the study results and published results.
Course content per type of class and number of class hours	1. Drug development – 2 hours 2. Planning a clinical trial – 2 hours 3. Recruitment process and inclusion of subjects in a clinical trial – 2 hours 4. Methods and basic safety in clinical trials – 2 hours 5. Monitoring, supervision, and inspection in clinical trials – 2 hours 6. Clinical trial results – 1 hour 7. Legal aspects of clinical trials – 1 hour
Types of class:	☒ lectures ☒seminars and workshops ☒ practicum ☐ full *online course* ☐ combined e-learning ☐ field work ☐ independent work tasks ☐ multimedia ☐ laboratory ☐ mentoring ☐ (other)
Student obligations	

Student performance follow-up (provide ECTS credits for each activity so that the						
	Class attendance		Research		Practical work	
	Experimental work		Report		(other)	
	Essay		Seminar paper		(other)	

total number of ECTS credits is equal to the ECTS value of the course)*):*	Tests		Oral exam		(other)	
	Written exam		Project		(other)	
Grading and evaluating student performance in class and at the final exam	Regular class attendance is the requirement for taking the Methodology of clinical research exam. The exam is written (a test). The written exam consists of 30 questions.					

	Title	**Number of copies in the library**	**Availability via other media**
Required literature (available in the library and via other media)	1. Osnove kliničke farmakologije, Medicinska naklada, 2007., urednici: Igor Francetić i Dinko Vitezić		
	2. Uvod u znastveni rad u medicini, Medicinska naklada, 2008., urednik Matko Marušić		
	3. WORLD MEDICAL ASSOCIATION DECLARATION OF HELSINKI Ethical Principles for Medical Research Involving Human Subject;		http: // www. wma. Net / en / 30publications /10 policies/b3/17c. pdf
	4. Phase II study of bevacizumab in combination with capecitabine as first-line treatment in elderly patients with metastatic colorectal cancer. Vrdoljak E, Omrčen T, Boban M, Hrabar A. Anticancer Drugs. 2011 Feb;22(2):191-7.		
	5. Concomitant chemobrachyradiotherapy with ifosfamide and cisplatin followed by consolidation chemotherapy in locally advanced squamous cell carcinoma of the uterine cervix: results of a phase II study. Vrdoljak E, Prskalo T, Omrcen T, Situm K, Boraska T, Frleta Ilić N, Janković S, Hamm W. Int J Radiat Oncol Biol Phys. 2005 Mar 1;61(3):824-9.		
	6. Bevacizumab plus irinotecan, fluorouracil, and leucovorin for metastatic colorectal cancer. Hurwitz H, Fehrenbacher L, Novotny W, Cartwright T, Hainsworth J, Heim W, Berlin J, Baron A, Griffing S, Holmgren E, Ferrara N, Fyfe G, Rogers B, Ross R, Kabbinavar F. N Engl J Med. 2004 Jun 3;350(23):2335-42		
	Sažeci predavanja i seminara		
Additional literature	Cochrane library methodology online ISRCTN i clinical trials.gov registries, online WHO online		
Quality assurance methods to ensure achievement of learning outcomes	▪ Teaching quality evaluation by students and faculty ▪ Analysis of exam pass rates ▪ Reports of the Committee for Control of Teaching Delivery ▪ Extramural evaluation (by quality control teams from the National Quality Assurance Agency, inclusion in TEEP)		

Other (in Course proposer's opinion)	

COURSE	CLINICAL BIOSTATISTICS					
Code	MEBO04	Year of the program	1			
Course director/s	Prof. Dr. Sc. Davor Eterović	Credits (ECTS)	4			
Associate faculty	Assist. Prof. Dr. Sc. Ana Jerončić Assoc. Prof. Dr. Sc. Goran Kardum Vesna Čapkun, dipl. ing.	Types of class (number of hours per semester)	L	S	P	T
			12	22	12	
Course status	Mandatory	Percentage of e-learning	0%			
COURSE DESCRIPTION						
Course objectives	To train student in critical assessment of presentation of statistical analysis results and study designs in research papers, to use basic and advanced statistical tools on real data and interpret the obtained results and, finally, to apply the acquired knowledge and skills to optimize one's own research.					
Course enrollment requirements and initial competencies required for the course						
Expected learning outcomes at the course level (4 to 10 learning outcomes)	• To remember, describe, and explain concepts of basic statistical methods and apply them to problem-solving tasks in clinical medicine, • To identify, describe, and explain advanced statistical methods such as: chi-square test, multiple linear regression, logistic regression, survival analysis, Cox regression, questionnaire analysis, and apply them to given problem-solving tasks • To identify, describe, and explain research errors • To assess critically the association between research design and data analysis on examples of published scientific articles • To assess critically if the data analysis presented in scientific articles is appropriate from statistical analysis point of view.					
Course content per type of class and number of class hours	**1. Elementary statistics repeated** - 6L: main statistical concepts, what statistical analyses have in common, comparison of quantitative and qualitative variables, regression, statistical test flow diagrams - 4P: creating tables and graphs using real data, on a computer. **2. Diagnostic study design and data analysis** - 2L: diagnostic study design and STARD initiative, parameters of validity of diagnostic method, ROCK analysis, - 2S: individual critical assessment of published articles in respect of following the STARD recommendations, and - 2P: practical work on a computer, using the real data from performed research. **3. Statistical aspects of study designs**					

<table>
<tr><td></td><td colspan="6">- 4L: sampling and control groups specific to a particular study design, problem of assessing an independent effect, relative odd and relative risk, confidence intervals, power of the study,

- 2S: critical review of published articles, and

- 2P: practical work on a computer, focused on calculating the needed sample size.

4. Important advanced methods

- 4L: extensions of chi-square test, multiple linear regression, logistic regression, survival analysis, Cox regression, analysis of questionnaires

- 4 S (2 two-hour seminars): critical review of published articles, and

- 4 P: creating tables and graphs using real data, on a computer.

5. How to present statistical aspects of research

- 2S</td></tr>
<tr><td>Types of class:</td><td colspan="3">☒ lectures
☒ seminars and workshops
☒ practicum
☐ full online course
☐ combined e-learning
☐ field work</td><td colspan="3">☐ independent work tasks
☐ multimedia
☐ laboratory
☐ mentoring
☐ (other)</td></tr>
<tr><td>Student obligations</td><td colspan="6"></td></tr>
<tr><td rowspan="5">Student performance follow-up (provide ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course):</td><td>Class attendance</td><td></td><td>Research</td><td></td><td>Practical work</td><td></td></tr>
<tr><td>Experimental work</td><td></td><td>Report</td><td></td><td>(other)</td><td></td></tr>
<tr><td>Essay</td><td></td><td>Seminar paper</td><td></td><td>(other)</td><td></td></tr>
<tr><td>Tests</td><td></td><td>Oral exam</td><td></td><td>(other)</td><td></td></tr>
<tr><td>Written exam</td><td></td><td>Project</td><td></td><td>(other)</td><td></td></tr>
<tr><td>Grading and evaluating student performance in class and at the final exam</td><td colspan="6">The requirement for the exam is regular class attendance.
Clinical Biostatistics exam is a written exam consisting of 90 questions.</td></tr>
<tr><td rowspan="6">Required literature (available in the library and via other media)</td><td colspan="3">Title</td><td>Number of copies in the library</td><td>Availability via other media</td></tr>
<tr><td colspan="3">Eterović D, Kardum G: Biostatistika za medicinare (IV. izdanje). Katedra za znanstvenu metodologiju, MF Split, 2006.</td><td></td><td></td></tr>
<tr><td colspan="3">Dawson B, Traqpp RG: Basic and Clinical Biostatistics (IV. Edition). New York, Lange Medical Books, 2004.</td><td></td><td></td></tr>
<tr><td colspan="3">Kirkwood BR: Essentials of medical statistics. Blackwell Scientific Publications, Oxford, 1992.</td><td></td><td></td></tr>
<tr><td colspan="3"></td><td></td><td></td></tr>
<tr><td colspan="3"></td><td></td><td></td></tr>
</table>

Additional literature	Rosner B: Fundamentals of biostatistics (IV edition). Duxbury Press, Belmont, 1995.		
Quality assurance methods to ensure achievement of learning outcomes	• Teaching quality evaluation by students and faculty • Analysis of exam pass rates • Reports of the Committee for Control of Teaching Delivery • Extramural evaluation (by quality control teams from the National Quality Assurance Agency, inclusion in TEEP)		
Other (in Course proposer's opinion)			

COURSE	**EVIDENCE-BASED MEDICINE IN CLINICAL PRACTICE**					
Code	MEBO08A	Year of the program	1			
Course director/s	Assist. Prof. Dr. Sc. Ivana Kolčić	Credits (ECTS)	1.5			
Associate faculty		Types of class (number of hours per semester)	L	S	P	T
			4	4		
Course status	Mandatory	Percentage of e-learning	0%			
COURSE DESCRIPTION						
Course objectives	To apply the acquired knowledge and principles of evidence-based medicine (EBM) to solving particular clinical questions encountered by students during everyday clinical work, using available EBM tools. In addition, to create the database of answers to EBM clinical questions in Croatian language.					
Course enrollment requirements and initial competencies required for the course	Taken courses in Introduction to Evidence-based Medicine (MEBO01), Quantitative methods in clinical research (MEBO06) and Evidence-based medicine (MEBO08).					
Expected learning outcomes at the course level (4 to 10 learning outcomes)	To formulate a clinical question that arouse in daily clinical practice, to demonstrate scientific evidence collection, to assess critically the results of individual studies with respect to relevancy to a specific individual patient and the level of evidence, to critically review collected evidence, to write and present a Critically Appraised Topic (CAT) and clinical conclusion (BestBET).					
Course content per type of class and number of class hours	EBM methods with an emphasis on the use of EBM tools to find answer to a specific clinical question encountered in practice (2P), to understand level of evidence and measures for risk/benefit assessment for a specific individual patient (1P), approach to literature search to find answer to a specific clinical question (1P). To formulate one PICO question from practical experience, to search literature and find evidence (1S), to write a CAT and clinical conclusion (BestBET) (2S), oral presentation (1S).					
Types of class:	☒ lectures ☒ seminars and workshops ☐ practicum ☐ full *online course* ☐ combined e-learning ☐ field work	x independent work tasks ☐ multimedia ☐ laboratory ☐ mentoring ☐ (other)				

Student obligations						
Student performance follow-up (provide ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)*:*	Class attendance	0.5	Research		Practical work	
	Experimental work		Report	0.5	(other)	
	Essay		Seminar paper	0.5	(other)	
	Tests		Oral exam		(other)	
	Written exam		Project		(other)	
Grading and evaluating student performance in class and at the final exam	Activity during seminars, Written exam, Oral exam – writing one review using a clinical question from everyday clinical practice (*Critically Appraised Topics* [CAT] and BestBET). Oral presentation and conclusion for clinical practice.					

Required literature (available in the library and via other media)	**Title**	**Number of copies in the library**	**Availability via other media**
	Gamulin S. Klinička istraživanja- klinička epidemiologija, Medicinska naklada, Zagreb, 2015.	20	
	Best Evidence Topics (BestBETs) baza		http://bestbets.org/database/browse-by-topic.php
	CEBM - Centre for Evidence Based Medicine, Oxford		http://www.cebm.net/
	Centre for Evidence Based Medicine, Toronto		http://ktclearinghouse.ca
	Trip Database - For Evidence Based Medicine (EBM)		http://www.tripdatabase.com
	NICE Clinical Knowledge Summaries		http://cks.nice.org.uk/

Additional literature	
Quality assurance methods to ensure achievement of learning outcomes	▪ Teaching quality evaluation by students and faculty ▪ Analysis of exam pass rates ▪ Reports of the Committee for Control of Teaching Delivery ▪ Extramural evaluation (by quality control teams from the National Quality Assurance Agency, inclusion in TEEP)
Other (in Course proposer's opinion)	

COURSE	**MEDICAL INFORMATION SEARCH**					
Code	MEBO05	Year of the program	1.			
Course director/s	Prof. Dr. Sc. Jelka Petrak	Credits (ECTS)	1.5			
Associate faculty	Ana Utrobičić, Prof. Dr. Sc. Helena Markulin	Types of class (number of hours per semester)	L	S	P	T
			1	3	4	8
Course status	Mandatory	Percentage of e-learning	0%			

COURSE DESCRIPTION						
Course objectives	To introduce students to reliable medical information sources, especially evidence-based medical sources, and how to search them, especially how to search for the best evidence in the published literature.					
Course enrollment requirements and initial competencies required for the course						
Expected learning outcomes at the course level (4 to 10 learning outcomes)	To understand specific features of medical information system; To become informed about sources of scientific evidence in medicine (Cochrane Library, PubMed/Clinical Queries, TRIP Database); To practice transferring a clinical problem into search strategy (PICO); To practice PubMed and EBM database search					
Course content per type of class and number of class hours	1L Medical information sources and their specific features 4S Medline/PubMed – structure, MeSH, CQ, clinical filters EBM databases 4P PubMed search Formulating a clinical question and Cochrane database search					
Types of class:	☒ lectures ☒ seminars and workshops ☒ practicum ☐ *full online course* ☐ combined e-learning ☐ field work		☐ independent work tasks ☐ multimedia ☐ laboratory ☐ mentoring ☐ (other)			
Student obligations						
Student performance follow-up (provide ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)*:*	Class attendance	x	Research		Practical work	x
	Experimental work		Report		(other)	
	Essay		Seminar paper		(other)	
	Tests		Oral exam		(other)	
	Written exam		Project		(other)	
Grading and evaluating student performance in class and at the final exam	Every student shall, on the basis of a clinical scenario, i.e. problem from clinical practice, create a literature search strategy (PICO model) and forward it to the teacher via an online service					

Required literature (available in the library and via other media)	**Title**	**Number of copies in the library**	**Availability via other media**
	Marušić M. i sur. Introduction to research in medicine. 5. izd. Zagreb: Medicinska naklada,2013.		
	Centre for Health Evidence. A User's Guide to Qualitative Research in Health Care.		http://www.cche.net/usersguides/qualitative.asp
	Goig DS, Simpson F. Efficient literature searching: a core skill for the practice of evidence-based		http://www.evidencebased.net/

	medicine. Intensive Care Medicine 2003;29:2119-27		files/EfficientLitSearchingCoreSkill4EBMDoigSimpsonICM2003.pdf
Additional literature	Evans I, et. al. Gdje su dokazi. Zagreb: Profil, 2014. url http://hr.testingtreatments.org/procitajte-knjigu-gdje-su-dokazi/		
Quality assurance methods to ensure achievement of learning outcomes	▪ Teaching quality evaluation by students and faculty ▪ Analysis of exam pass rates ▪ Reports of the Committee for Control of Teaching Delivery ▪ Extramural evaluation (by quality control teams from the National Quality Assurance Agency, inclusion in TEEP)		
Other (in Course proposer's opinion)			

COURSE	CLINICAL RESEARCH AND MEASUREMENT					
Code	MEBO07	Year of the program	1			
Course director/s	Prof. Dr. Željko Dujić	Credits (ECTS)	3			
Associate faculty	Prof. Dr. Sc. Željko Dujić Prof. Dr. Sc. Marko Ljubković Prof. Dr. Sc. Jasna Marinović Prof. Dr. Sc. Darija Baković	Types of class (number of hours per semester)	L	S	P	T
			4	12	12	28
Course status	Mandatory	Percentage of e-learning	0%			
COURSE DESCRIPTION						
Course objectives	To understand scientific way of thinking and its specificites in medicine are prerequisite for clinical research. Inadequately planned and performed experiments are a frequent source of frustration for researchers, incur immense and unjustified expenses, and may lead to erroneous scientific conclusions. The purpose of precise clinical measurement is to collect reliable data. It is extremely important for every researcher to know how to analyze thus collected data and how to base congress communication based on these data. By being included in elementary processes of research, students learn to appraise critically the research papers and published articles and the quality of used methods.					
Course enrollment requirements and initial competencies required for the course	Enrollment to the first year of the program.					
Expected learning outcomes at the course level (4 to 10 learning outcomes)	To formulate a correct research hypothesis. To identify correctly appropriate methods to test the research hypothesis. To perform correctly measurements of selected physiological parameters for the purpose of hypothesis testing and to interpret correctly the obtained results. To describe the dependence of physiological variables in a form of diagram. To choose the appropriate statistical method and interpret correctly the results of statistical analysis. To make a poster presentation of obtained results and present them orally. To critically assess the obtained results against the published research.					
Course content per type of class and number of class hours	Title and content: Characteristics of human integrative physiology, problems of current understanding of human body reactions to various environmental factors (e.g. exercising, breathing in hypoxic mixture, breath holding), presentation of investigated and especially not yet investigated physiological phenomena, presentation of an example of mechanistic approach to the analysis of complex physiological reactions, importance of precision in clinical measurements (p 2x 2s= 4s). Effects of simulated dive on the cardiovascular system, active and reactive hyperemia, effect of static and dynamic exercise on arterial blood pressure, effects of repetitive breathing or apnea on muscle oxygen saturation, effects of simulated dive on spleen contraction, effects of various pharmacological intervention on cellular and mitochondrial bioenergetics and changes in protein expression (3P x 4S =12 h)					

<table>
<tr><td></td><td colspan="6">Data analysis in Chart form (2S)

Data input into a program for tabular calculations, data compression (2S)

Graphic presentation of data (2S)

Presentation of obtained research results (2S)

Journal club: analysis of scientific articles with respect to measured parameters (4S)</td></tr>
<tr><td>Types of class:</td><td colspan="3">☒ lectures
☒ seminars and workshops
☒ practicum
☐ full online course
☐ combined e-learning
☐ field work</td><td colspan="3">☒ independent work tasks
☐ multimedia
☒ laboratory
☒ mentoring
☐ (other)</td></tr>
<tr><td>Student obligations</td><td colspan="6"></td></tr>
<tr><td rowspan="6">Student performance follow-up (provide ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)):</td><td>Class attendance</td><td></td><td>Research</td><td></td><td>Practical work</td><td></td></tr>
<tr><td>Experimental work</td><td></td><td>Report</td><td></td><td>(other)</td><td></td></tr>
<tr><td>Essay</td><td></td><td>Seminar paper</td><td></td><td>(other)</td><td></td></tr>
<tr><td>Tests</td><td></td><td>Oral exam</td><td></td><td>(other)</td><td></td></tr>
<tr><td>Written exam</td><td></td><td>Project</td><td></td><td>(other)</td><td></td></tr>
<tr><td colspan="6"></td></tr>
<tr><td>Grading and evaluating student performance in class and at the final exam</td><td colspan="6">Written exam, evaluation of seminar and practical tasks, final conference</td></tr>
<tr><td rowspan="9">Required literature (available in the library and via other media)</td><td colspan="3">Title</td><td>Number of copies in the library</td><td>Availability via other media</td></tr>
<tr><td colspan="3">PowerLab Manual</td><td></td><td></td></tr>
<tr><td colspan="3">Manual for tabulated calculation program</td><td></td><td></td></tr>
<tr><td colspan="3">Manuals for use of different measuring devices (Finometer, ST3 transcranial brain blood flow measurement device, spectrophotometer, etc)</td><td></td><td></td></tr>
<tr><td colspan="3">Summaries of lectures and seminars</td><td></td><td></td></tr>
<tr><td colspan="3"></td><td></td><td></td></tr>
<tr><td colspan="3"></td><td></td><td></td></tr>
<tr><td colspan="3"></td><td></td><td></td></tr>
<tr><td colspan="3"></td><td></td><td></td></tr>
<tr><td>Additional literature</td><td colspan="6">Scientific articles that provide the basis for future planned research.</td></tr>
<tr><td>Quality assurance methods to ensure achievement of learning outcomes</td><td colspan="6">▪ Teaching quality evaluation by students and faculty
▪ Analysis of exam pass rates
▪ Reports of the Committee for Control of Teaching Delivery
▪ Extramural evaluation (by quality control teams from the National Quality Assurance Agency, inclusion in TEEP)</td></tr>
<tr><td>Other (in Course</td><td colspan="6"></td></tr>
</table>

proposer's opinion)	

COURSE	**EVIDENCE-BASED MEDICINE**					
Code	MEBO08	Year of the program	1			
Course director/s	Academician Stjepan Gamulin, Assist. Prof. Dr. Sc. Ivana Kolčić	Credits (ECTS)	3			
Associate faculty	Prof. dr. Jadranka Morović-Vergles	Types of class (number of hours per semester)	L	S	P	T
			2	12		
Course status	Mandatory	Percentage of e-learning	0%			

COURSE DESCRIPTION						
Course objectives	To create preconditions for students to accept evidence-based medicine (EBM) as a way of scientific thinking and conclusion making and to use available EBM tools in everyday clinical practice.					
Course enrollment requirements and initial competencies required for the course	-					
Expected learning outcomes at the course level (4 to 10 learning outcomes)	To describe the goal, purpose, and methods of EBM; to list its scope and limitations; to formulate a meaningful clinical question; to demonstrate scientific evidence collection; to assess critically the results of individual research studies; to review critically the collected evidence; to plan the use of evidence in clinical practice; to write a CAT (Critically Appraised Topic).					
Course content per type of class and number of class hours	The meaning, purpose, and methods of EBM (2P). Critical assessment of evidence on diagnostic methods (3S), determining the cause and prognosis of disease (3S), treatment methods and adverse drug reactions (4S). To write a CAT (2S).					
Types of class:	☒ lectures ☒ seminars and workshops ☐ practicum ☐ *full online course* ☐ combined e-learning ☐ field work		☐ independent work tasks ☐ multimedia ☐ laboratory ☐ mentoring ☐ (other)			
Student obligations						
Student performance follow-up (provide ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)*:*	Class attendance	0.5	Research		Practical work	
	Experimental work		Report		(other)	
	Essay		Seminar paper	0,7	(other)	
	Tests		Oral exam		(other)	
	Written exam	1,8	Project		(other)	
Grading and evaluating student performance in class and at the final exam	Activity in seminars. Written exam – writing a CAT (*Critically Appraised Topics*), i.e. preparing a summary of best available evidence in order to answer a specific clinical question.					

	Title	Number of copies in the library	Availability via other media
Required literature (available in the library and via other media)	Gamulin S. Klinička istraživanja- klinička epidemiologija, Medicinska naklada, Zagreb, 2015	20	
	Selected scientific articles (>15)		
	CEBM - Centre for Evidence Based Medicine , Oxford		http://www.cebm.net/
	Centre for Evidence Based Medicine , Toronto		http://ktclearinghouse.ca
	Trip Database - For Evidence Based Medicine (EBM)		http://www.tripdatabase.com
	NICE Clinical Knowledge Summaries		http://cks.nice.org.uk/
Additional literature	Sharon E, Straus SE, Richardson WS, Glasziou P, Haynes RB, Evidence-based medicine. How to practice and teach EBM, (4th ed.) Edinburgh, Elsevier, Churchill Livingstone, 2011.		
Quality assurance methods to ensure achievement of learning outcomes	▪ Teaching quality evaluation by students and faculty ▪ Analysis of exam pass rates ▪ Reports of the Committee for Control of Teaching Delivery ▪ Extramural evaluation (by quality control teams from the National Quality Assurance Agency, inclusion in TEEP)		
Other (in Course proposer's opinion)			

<table>
<tr><td>COURSE</td><td colspan="5">HEALTHCARE QUALITY, ASSESSMENT AND IMPROVEMENT</td></tr>
<tr><td>Code</td><td>MEBO09</td><td>Year of the program</td><td colspan="3">1</td></tr>
<tr><td>Course director/s</td><td>Assist. Prof. Dr. Sc. Nataša Boban</td><td>Credits (ECTS)</td><td colspan="3">2.5</td></tr>
<tr><td rowspan="2">Associate faculty</td><td rowspan="2">Dr. Sc. Sanja Čulin
Academician Prof. Dr. Dinko Kovačić</td><td rowspan="2">Types of class (number of hours per semester)</td><td>L</td><td>S</td><td>P</td><td>T</td></tr>
<tr><td>14</td><td></td><td></td><td>14</td></tr>
<tr><td>Course status</td><td>Mandatory</td><td>Percentage of e-learning</td><td colspan="3">0%</td></tr>
<tr><td colspan="6">COURSE DESCRIPTION</td></tr>
<tr><td>Course objectives</td><td colspan="5">General: knowledge of the principles of assessment and improvement of healthcare quality and standards and criteria on which the assessment is based; internal and external quality assessment.

Specific: knowledge of retrospective and prospective methods of internal assessment and improvement of health care quality.</td></tr>
<tr><td>Course enrollment requirements and initial competencies required for the course</td><td colspan="5">Enrollment to the first year of the program</td></tr>
<tr><td>Expected learning outcomes at the course level (4 to 10 learning outcomes)</td><td colspan="5">Critical assessment of scientific knowledge in the area of medical quality and possibility of clinical changes and stimulation of translational research.
In a cognitive domain – knowledge: identifying, defining, naming, and linking concepts in quality domain; understanding and knowledge of legal and institutional organization at the national, EU, and global levels; to anticipate how to apply this knowledge in particular clinical conditions; how to analyze them and how to creatively design and arrange and evaluate the obtained results.
In a psychomotor domain – skills: improved perceptiveness, i.e. perception of criteria and indicators for follow up; readiness to initiate changes, performance under supervision and then independently toward completely mastering the skills in problematic situation until new behavioral patterns and skills develop.
In affective domain – attitudes, emotions, values: awareness, usability; active motivational reaction and acquiring values in the domain of ensuring and improving the quality to organizing and maintaining the system of quality.</td></tr>
<tr><td>Course content per type of class and number of class hours</td><td colspan="5"><u>Lectures (14 student hours): number of hours</u>
1. General principles, criteria, and standards; design, performance, and outcome of care; assessment of efficacy and safety of health technology – 1 h
2. Legal framework and regulations and national (AKAZ, AAZ) and international institutions, standards – 1 h
3. overview of actualities in clinical practice and research – 1 h
4. Indicators of clinical performance (mortality, unplanned readmissions, return to operating room, Cesarean section rates) – 1 h
5. Adverse events and iatrogenic injuries, risk management – 1 h
6. Journal club: attitudes and values about structure. Interdisciplinary collaboration.
7. Risks and adverse events: hospital infections, drug administration risks, blood transfusion risks, risks related to the use of blood components; bed sores – 1 h
8. Adverse events in anesthesiology – 1 h</td></tr>
</table>

<table>
<tr><td></td><td colspan="6">9. Approach to prevention of adverse events – 1 h

10. Retrospective methods of assessment and improvement of healthcare quality – patient satisfaction, peer review, clinical audit/revision – 1h

9 Clinical audit – laboratory accreditation

11. Prospective methods of assessment and improvement of healthcare quality – guidelines for clinical performance, protocols, algorithms

12 Approach to special research studies – design, conduct, healthcare outcome – 1h

13 Interconnectedness of quality assessment, evidence-based medicine, and health technology assessment – 1 h

14. Concluding discussion – scientific approach to healthcare quality – 1 h</td></tr>
<tr><td>Types of class:</td><td colspan="3">☒ lectures
☒ seminars and workshops
☐ practicum
☐ full online course
☐ combined e-learning
☐ field work</td><td colspan="3">☒ independent work tasks
☐ multimedia
☐ laboratory
☒mentoring
☐ (other)</td></tr>
<tr><td>Student obligations</td><td colspan="6"></td></tr>
<tr><td rowspan="5">Student performance follow-up (provide ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)):</td><td>Class attendance</td><td>☒</td><td>Research</td><td></td><td>Practical work</td><td>☒</td></tr>
<tr><td>Experimental work</td><td></td><td>Report</td><td></td><td>(other)</td><td></td></tr>
<tr><td>Essay</td><td>☒</td><td>Seminar paper</td><td>☒</td><td>(other)</td><td></td></tr>
<tr><td>Tests</td><td></td><td>Oral exam</td><td></td><td>(other)</td><td></td></tr>
<tr><td>Written exam</td><td></td><td>Project</td><td></td><td>(other)</td><td></td></tr>
<tr><td>Grading and evaluating student performance in class and at the final exam</td><td colspan="6">The requirement for taking the exam is regular class attendance.
The exam consists of an oral exam, assessment of student’s skills and attitudes shown at classes, active participation in workshops and team work in developing material on the subject, writing an essay that shows theoretical knowledge and understanding how it is used in clinical practice; critical evaluation of a scientific article on evidence-based medicine; independent work, with mentor's help if needed.</td></tr>
<tr><td rowspan="2">Required literature (available in the library and via other media)</td><td colspan="3">Title</td><td>Number of copies in the library</td><td>Availability via other media</td></tr>
<tr><td colspan="3">Healthcare Quality improvement
in: Mayhall:Hospital Epidemiology and Infection control. Lippincot Williams and Wilkins 2012.
Fletcher R H, Fletcher S W, Wagner E: Clinical Epidemiology -the essentials. Williams and Wilkins 2012.
Boban N. Bolničke infekcije u: Puntarić D, Ropac D. Epidemiologija zaraznih bolesti. Medicinska naklada Zagreb 2010
Eldar R. Vrsnoća Medicinske Skrbi. Medicinska naklada, Zagreb 2003
Kolčić I, Vorko-Jović A. Epidemiologija. Medicinska naklada, Zagreb 2012
Kovačić l. Organizacija i upravljanje u zdravstvenoj zaštiti, Med. naklada, Zagreb 2003</td><td></td><td></td></tr>
</table>

	Eldar R. Quality of primary care. Croat Med J 2004; 45: 679-684 Eldar R. Quality of Care. Medicinska naklada Zagreb, 2005. Ransom ER, Maulik S Ji: The Healthcare Quality Book: Vision, Strategy, and Tools, 2008 Committee on Quality of Health Care in America, Institute of Medicine David B. Nash. Crossing the Quality Chasm: A New Health System for the 21st Century . 2012 American College of Medical Quality, Prathibha Varkey MD: Medical Quality Management: Theory And Practice, 2009		
Additional literature	Donabedian A. An Introduction to Quality Assurance in the Health Care. Oxford University Press Inc. NY 2003. International Society for Quality in Health Care. International accreditation toolkit. 2004. www.isqua.org.issue Shaw CD,Kalo I. Background for national quality policy in health systems. 2002. WHO document www.euro.who.int.document World Health Organization (2003) The world health report 2003: Shaping the future. Geneva: http://www.who.int/whr/2003/en WHO Reg. Office for Europe. The European Health Report, European Series 2002 No. 97 Shaw CD Editorial. Standards for better health BMJ 2001;329:1250-51 Shaw CD: External assessment of health care. BMJ 2001;323:851-54 www.HČJZ .hr 2010 Donaldson S. The Error is Human.National Academy Press, Washington.2000 Hammer-Plećaš A, Čvoriščec D, Stavljenić-Rukavina A. Priručnik o kvaliteti . - model. Biochemia Medica 1994; (4)1-2: 31-42. Mainz J, Krog BR, Bjornshave B, Bartels PD. Nationwide continuous quality improvement using clinical indicators: The Danish National Indicator Project. Intl J Quality Health Care, 2004; 16: suppl 1, 45-50 Veillard J, Champagne F, Klazinga N et al. A performance assessment framework for hospitals: The WHO Regional Office for Europe PATH project. Intl J Quality Health Care.2005;17:487-96		
Quality assurance methods to ensure achievement of learning outcomes	▪ Teaching quality evaluation by students and faculty ▪ Reports of the Committee for Control of Teaching Delivery ▪ Extramural evaluation		
Other (in Course proposer's opinion)			

COURSE	**IZRADA ZNANSTVENOG RADA**					
Code	MEBO11	Year of the program	1			
Course director/s	Prof. Dr. Sc. Zoran Đogaš	Credits (ECTS)	2			
Associate faculty		Types of class (number of hours per semester)	L	S	P	T
			2	4	9	15
Course status	Mandatory	Percentage of e-learning	20%			
COURSE DESCRIPTION						
Course objectives	The main goal is to teach students about the main structure of a scientific article, which may serve as a basis for acquiring writing skills needed to write their own research paper based on their own doctoral research data.					
Course enrollment requirements and initial competencies	Enrollment in the first year of the program.					

<table>
<tr><td>required for the course</td><td colspan="6"></td></tr>
<tr><td>Expected learning outcomes at the course level (4 to 10 learning outcomes)</td><td colspan="6">To describe the structure of a scientific article.
To describe the association between scientific evidence and structure of scientific article.
To demonstrate collection and preparation of data and literature, writing individual sections of a manuscript, technical formatting of a manuscript.
To present research results, electronic editing of tables and figures.
To assess efficiency of graphic presentations.
To describe the publishing process.
To assess critically the selected scientific articles.</td></tr>
<tr><td>Course content per type of class and number of class hours</td><td colspan="6">Lectures
1×2 hours
Evidence-based writing of research paper
Seminars
2×2 hours
1. Structure of scientific article
2. Choosing a journal for publication of manuscript
Practicum
3×3 hours
1. Writing a research paper – Introduction and Methods
2. Writing a research paper – Results, Discussion
3. Writing a research paper – References and additional material (figures and tables)
Practicum will be organized as „Paper Clinics“, to discuss students' manuscripts.</td></tr>
<tr><td>Types of class:</td><td colspan="3">☒ lectures
☒ seminars and workshops
☒ practicum
☐ full online course
☐ combined e-learning
☐ field work</td><td colspan="3">☒ independent work tasks
☐ multimedia
☐ laboratory
☐ mentoring
☐ (other)</td></tr>
<tr><td>Student obligations</td><td colspan="6">Class attendance</td></tr>
<tr><td rowspan="6">Student performance follow-up (provide ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)):</td><td>Class attendance</td><td></td><td>Research</td><td>0.5</td><td>Practical work</td><td></td></tr>
<tr><td>Experimental work</td><td></td><td>Report</td><td></td><td>(other)</td><td></td></tr>
<tr><td>Essay</td><td></td><td>Seminar paper</td><td>1</td><td>(other)</td><td></td></tr>
<tr><td>Tests</td><td></td><td>Oral exam</td><td></td><td>(other)</td><td></td></tr>
<tr><td>Written exam</td><td>0.5</td><td>Project</td><td></td><td>(other)</td><td></td></tr>
<tr><td colspan="6"></td></tr>
<tr><td>Grading and evaluating student performance in class and at the final exam</td><td colspan="6">Planning and collecting data for one's own research.
Drafting a manuscript describing one's own research
Passing a written multiple-choice test</td></tr>
<tr><td rowspan="4">Required literature (available in the library and via other media)</td><td colspan="3">Title</td><td>Number of copies in the library</td><td>Availability via other media</td></tr>
<tr><td colspan="3">Summaries of lectures and seminars</td><td></td><td></td></tr>
<tr><td colspan="3">Marušić M i sur. Introduction to research in medicine, Zagreb, Medicinska naklada, 2004.</td><td></td><td></td></tr>
<tr><td colspan="3"></td><td></td><td></td></tr>
</table>

Additional literature			
Quality assurance methods to ensure achievement of learning outcomes	▪ Teaching quality evaluation by students and faculty ▪ Analysis of exam pass rates ▪ Reports of the Committee for Control of Teaching Delivery ▪ Extramural evaluation (by quality control teams from the National Quality Assurance Agency, inclusion in TEEP)		
Other (in Course proposer's opinion)			

COURSE	**WRITING RESEARCH PROJECTS**					
Code	MEBO012	Year of the program	1			
Course director/s	Assoc. Prof. Dr. Sc. Jasna Marinović Assoc. Prof. Dr. Sc. Marko Ljubković	Credits (ECTS)	2			
Associate faculty		Types of class (number of hours per semester)	L	S	P	T
			8	4	0	
Course status	Mandatory	Percentage of e-learning	0%			
COURSE DESCRIPTION						
Course objectives	1. To introduce students to the importance of writing research projects 2. To introduce students to the content and structure of research projects 3. To inform students about funding sources for research projects 4. To train students to be able to independently write research projects					
Course enrollment requirements and initial competencies required for the course						
Expected learning outcomes at the course level (4 to 10 learning outcomes)	Explain the purpose of writing research projects 1. Identify and list funding sources for research projects 2. List sections of research projects 3. Explain the process and technique of writing individual sections of research projects 4. Describe the research project application process 5. Describe the process of evaluation of applied research project quality and follow-up of approved research projects 6. Independently write a dummy research project					
Course content per type of class and number of class hours	LECTURES: 1. Introduction to the topic of research project (2 hours) 2. Planning and preparing for writing a research project (2 hours) 3. Writing individual sections of research projects (2 hours) 4. Research project application, project quality evaluation process and					

	administrative and financial follow-up of the project (2 hours) SEMINARS: 1. Planning a dummy research project, part 1 (2 hours) 2. Planning a dummy research project, part 2 (2 hours)
Types of class:	☒ lectures ☒ seminars and workshops ☐practicum ☐ *full online course* ☐ combined e-learning ☐ field work ☐ independent work tasks ☐ multimedia ☐ laboratory ☐ mentoring ☐ (other)
Student obligations	Active participation in classes, writing a report (research project) independently

Student performance follow-up (provide ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)*:*						
	Class attendance	0.5	Research		Practical work	
	Experimental work		Report	1.1	(other)	
	Essay		Seminar paper		(other)	
	Tests		Oral exam	0.4	(other)	
	Written exam		Project		(other)	

Grading and evaluating student performance in class and at the final exam	The grade is based on regular class attendance (25% of the grade), positive evaluation of the Report (55%) and oral exam (20%)

Required literature (available in the library and via other media)	**Title**	**Number of copies in the library**	**Availability via other media**
	1. Power Point presentation (lectures by Prof. Volarevića)		
	2. Marušić M., Petrovečki M., Petrak J., Marušić A.: Introduction to research in medicine; Medicinska naklada, Zagreb, 1996.		
	3. Silobrčić V.: Kako sastaviti, objaviti i ocijeniti znanstveno djelo; Medicinska naklada, Zagreb, 1994.		

Additional literature	Examples of written research projects will be available to students during lectures.
Quality assurance methods to ensure achievement of learning outcomes	▪ Teaching quality evaluation by students and faculty ▪ Analysis of exam pass rates ▪ Reports of the Committee for Control of Teaching Delivery ▪ Extramural evaluation (by quality control teams from the National Quality Assurance Agency, inclusion in TEEP)
Other (in Course proposer's opinion)	

COURSE	**DOCTORAL DISSERTATION TOPIC PROPOSAL I**		
Code	MEBO13	Year of the program	1

Course director/s	Academician Stjepan Gamulin/ Prof. Dr. Sc. Željko Dujić	Credits (ECTS)	0.5			
Associate faculty		Types of class (number of hours per semester)	L	S	P	T
			2	2		4
Course status	Mandatory	Percentage of e-learning	0%			

COURSE DESCRIPTION

Course objectives	Regulations regulating the doctoral graduation process, writing a topic proposal.
Course enrollment requirements and initial competencies required for the course	Enrollment to the first year of the program.
Expected learning outcomes at the course level (4 to 10 learning outcomes)	To describe and explain the most important components of doctoral dissertation topic proposal. To critically assess teaching material, participate in argument-driven discussion and provide opinion. To critically assess the roles of mentor and student in the doctoral graduation process. To create a successful research plan that will result in favorable and reliable outcome. To apply the acquired knowledge to writing a doctoral dissertation topic proposal.
Course content per type of class and number of class hours	Overview of regulations that regulate the doctoral graduation process, the role and responsibilities of mentor, the structure of dissertation topic proposal, writing a topic proposal, process of topic proposal approval (P 2h). Discussion on the doctoral dissertation topic proposal (S 2h).
Types of class:	☒ lectures ☒ seminars and workshops ☐ practicum ☐ *full online course* ☐ combined e-learning ☐ field work ☐ independent work tasks ☐ multimedia ☐ laboratory ☐ mentoring ☐ (other)
Student obligations	

Student performance follow-up (provide ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)*:*						
	Class attendance		Research		Practical work	
	Experimental work		Report		(other)	
	Essay		Seminar paper		(other)	
	Tests		Oral exam		(other)	
	Written exam		Project		(other)	

Grading and evaluating student performance in class and at the final exam	Accepted topic proposal.

	Title	Number of copies in the library	Availability via other media
Required literature (available in the library and via other media)	Guidelines for doctoral dissertation topic proposal, regulations that regulate the doctoral graduation process at the University of Split School of Medicine (www.mefst.hr/pds/pravilnik o stjecanju doktorata).		
Additional literature			
Quality assurance methods to ensure achievement of learning outcomes	▪ Teaching quality evaluation by students and faculty ▪ Analysis of exam pass rates ▪ Reports of the Committee for Control of Teaching Delivery ▪ Extramural evaluation (by quality control teams from the National Quality Assurance Agency, inclusion in TEEP)		
Other (in Course proposer's opinion)			

COURSE	**EVIDENCE-BASED GLOBAL HEALTH**					
Code	MEBO14	Year of the program	1			
Course director/s	Assoc. Prof. Dr. Sc. Ozren Polašek	Credits (ECTS)	2			
Associate faculty	Assist. Prof. Dr. Sc. Ivana Kolčić	Types of class (number of hours per semester)	L	S	P	T
			4	6	5	
Course status	Mandatory	Percentage of e-learning	0%			
COURSE DESCRIPTION						
Course objectives	To introduce the student to basic global health and develop attitudes toward the use of EBM methods for assessment, monitoring, and improvement of health					
Course enrollment requirements and initial competencies required for the course	None					
Expected learning outcomes at the course level (4 to 10 learning outcomes)	Understanding of the main demographic determinants and approaches to determining health. Understanding how to use data to improve health and carry out projects. Main characteristics of systematic review and epidemiological modeling. Disease burden assessment.					
Course content per type of class and number of class hours	Lectures: Overview of global health, data sources. Health For All (HFA), the World Bank, main characteristics of systematic review, epidemiological modeling. Analysis of global pneumonia burden, epidemiological modeling.					

Types of class:	☒ lectures ☒ seminars and workshops ☒ practicum ☐ *full online course* ☐ combined e-learning ☐ field work	☐ independent work tasks ☐ multimedia ☐ laboratory ☐ mentoring ☐ (other)
Student obligations	Class attendance, preparing a critical review of statistical analysis in a published research paper	

Student performance follow-up (provide ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)*:*						
	Class attendance	40	Research		Practical work	20
	Experimental work		Report		(other)	
	Essay	40	Seminar paper		(other)	
	Tests		Oral exam		(other)	
	Written exam		Project		(other)	

Grading and evaluating student performance in class and at the final exam	Presentation of a global disease burden on a chosen topic.

Required literature (available in the library and via other media)	**Title**	**Number of copies in the library**	**Availability via other media**
	http://www.ted.com/index.php/talks/view/id/140	0	Da

Additional literature	Additional materials will be provided to students before the classes.
Quality assurance methods to ensure achievement of learning outcomes	▪ Teaching quality evaluation by students and faculty ▪ Analysis of exam pass rates ▪ Reports of the Committee for Control of Teaching Delivery ▪ Extramural evaluation (by quality control teams from the National Quality Assurance Agency, inclusion in TEEP)
Other (in Course proposer's opinion)	

COURSE	**APPROACH TO RESEARCH IN BIOMEDICINE**					
Code	MEBO14	Year of the program	1			
Course director/s	Assoc. Prof. Dr. Sc. Ozren Polašek	Credits (ECTS)	1			
Associate faculty	Assist. Prof. Dr. Sc. Ivana Kolčić	Types of class (number of hours per semester)	L	S	P	T
			3	3	0	

Course status	Mandatory	Percentage of e-learning	0%

COURSE DESCRIPTION

Course objectives	To introduce the students to the fundamentals of research design and ensure they acquire knowledge needed to independently define their research, which they will describe in research papers and use for doctoral dissertation.
Course enrollment requirements and initial competencies required for the course	None
Expected learning outcomes at the course level (4 to 10 learning outcomes)	Understanding determinants of research design in biomedicine. Understanding differences between research study designs, their advantages and disadvantages, ability to independently design one's own research study for the needs of research paper and doctoral dissertation.
Course content per type of class and number of class hours	Lecture (1h): Descriptive research Lecture (1h): Analytical research: cohort, cross-sectional, case-control Lecture (1h): Experimental research: randomized clinical trial Seminar 1 (1h): Selected study examples: cohort studies Seminar 2 (1h): Selected study examples: cross-sectional studies Seminar 3 (1h): Selected study examples: case-control studies

Types of class:	☒ lectures ☒ seminars and workshops ☒ practicum ☐ *full online course* ☐ combined e-learning ☐ field work	☐ independent work tasks ☐ multimedia ☐ laboratory ☐ mentoring ☐ (other)
Student obligations	Class attendance, preparing a critical review of statistical analysis in a published scientific article	

Student performance follow-up (provide ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)*:*	Class attendance	20	Research	30	Practical work	50
	Experimental work		Report		(other)	
	Essay		Seminar paper		(other)	
	Tests		Oral exam		(other)	
	Written exam		Project		(other)	

Grading and evaluating student performance in class and at the final exam	Students have to write a research plan for their doctoral dissertation.		
Required literature (available in the library and via other media)	**Title**	**Number of copies in the library**	**Availability via other media**
	Kolčić I, Vorko Jović A (ur.) Epidemiologija. Medicinska naklada, Zagreb: 2013.	5	
	Gordis L. Epidemiology. Saunders, 4th edition	1	

Additional literature			
Quality assurance methods to ensure achievement of learning outcomes	▪ Teaching quality evaluation by students and faculty ▪ Analysis of exam pass rates ▪ Reports of the Committee for Control of Teaching Delivery ▪ Extramural evaluation (by quality control teams from the National Quality Assurance Agency, inclusion in TEEP)		
Other (in Course proposer's opinion)			

COURSE	**QUANTITATIVE METHODS IN CLINICAL RESEARCH**					
Code	MEBO6	Year of the program	1.			
Course director/s	Academician Stjepan Gamulin, Assist. Prof. Dr. Sc. Ivana Kolčić	Credits (ECTS)	2.5			
Associate faculty		Types of class (number of hours per semester)	L	S	P	T
			6	10		16
Course status	Mandatory	Percentage of e-learning	0%			
COURSE DESCRIPTION						
Course objectives	Adopting knowledge needed for quantitative evaluation of clinical research results, which is necessary in everyday clinical practice.					
Course enrollment requirements and initial competencies required for the course	-					
Expected learning outcomes at the course level (4 to 10 learning outcomes)	To list the definitions of diagnostic test accuracy parameters, calculate sensitivity, specificity, positive and negative predictive value, calculate the likelihood ratio of positive and negative test, and on the basis of these indicators choose the best diagnostic test for use in practice. To review the results of research in risk factors and causes of health outcomes. To compare patient survival depending on the used treatment method. To calculate positive and negative treatment effects and on the basis of results, select the most appropriate treatment method for patients with certain health problems.					
Course content per type of class and number of class hours	Relation between qualitative and quantitative results in clinical work. Quantitative assessment of results reliability, applicability to given problem/patient, unbiased assessment of clinical success (2P). Quantitative assessment of diagnostic procedures (1P, 2S), prognostic parameters (1P, 2S), success of treatment methods (1P, 2S), causes of disease and harmfulness of treatment methods (1P, 2S). Independent quantitative assessment of clinical work (2S).					
Types of class:	☒ lectures ☒ seminars and workshops ☐ practicum ☐ *full online course* ☐ combined e-learning	☐ independent work tasks ☐ multimedia ☐ laboratory ☐ mentoring ☐ (other)				

	☐ field work					
Student obligations						
Student performance follow-up (provide ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)*:*	Class attendance	0.5	Research		Practical work	
	Experimental work		Report		(other)	
	Essay		Seminar paper	0,8	(other)	
	Tests		Oral exam		(other)	
	Written exam	1,2	Project		(other)	
Grading and evaluating student performance in class and at the final exam	Seminar paper and written exam					

	Title	Number of copies in the library	Availability via other media
Required literature (available in the library and via other media)	Gamulin S. Klinička istraživanja- klinička epidemiologija, Medicinska naklada, Zagreb, 2015		http://ktclearinghouse.ca/cebm/toolbox
	Kolčić I, Vorko Jović A (ur). Epidemiologija. Zagreb: Medicinska naklada, 2012.		
	Centre for Evidence Based Medicine, Toronto; EBM Toolbox		http://neuron.mefst.hr/docs/graduate%20school/novosti/KE-%20EBM%20definicije%205.pdf
	Full-text research articles (>15)		
Additional literature	Marušić M et al. Introduction to research in medicine., Zagreb; Medicinska naklada, 2008.		
Quality assurance methods to ensure achievement of learning outcomes	▪ Teaching quality evaluation by students and faculty ▪ Analysis of exam pass rates ▪ Reports of the Committee for Control of Teaching Delivery ▪ Extramural evaluation (by quality control teams from the National Quality Assurance Agency, inclusion in TEEP)		
Other (in Course proposer's opinion)			

COURSE	**ETHICS IN CLIICAL RESEARCH**					
Code	MEBO10	Year of the program	2			
Course director/s	Prof. dr. Zvonko Rumboldt	Credits (ECTS)	1.5			
Associate faculty	Prof. dr. Mirjana Rumboldt, Marita Mimica, Prof. psychol.	Types of class (number of hours per semester)	L	S	P	T
			4	4		
Course status	Mandatory	Percentage of e-	20%			

		learning	

COURSE DESCRIPTION

Course objectives	For this course, attitudes matter more than **knowledge and skills**. However, knowledge of the principles of ethics and basic theories (e.g. teleologic, deontologic) and facts (e.g. Hippocratic Oath, Helsinki Declaration) is a useful starting point. Multiple-choice technique improves ethical judgment in challenging circumstances. The course objective is acquisition of basic knowledge about moral principles, understanding bioethical postulates and human rights (understanding interrelations with subjects of rights and obligations and then as objects of use), and assessment of validity of moral arguments with respect to specific medical problems, especially clinical research. The purpose of the course is to increase sensitivity to value judgments, especially in clinical research and physician-patient relationship. Students' active approach to teaching material is encouraged and facilitated by interactive, seminar-type of lecturing and various forms of homework.
Uvjeti za upis predmeta	
Expected learning outcomes at the course level (4 to 10 learning outcomes)	Understanding ethical reasoning, resolving moral dilemmas, using moral reasoning in clinical trial planning, drafting a research proposal to be evaluated by an Institutional Ethics Committee (IEC), critical assessment of scientific article.
Course content per type of class and number of class hours	Lectures (4 student/hours) 1) Introduction to ethics. Physician-patient relationship. Specificities of clinical trial [in Croatian]. 2 h Seminars (4 student/hours) 1) The work of IEC. Appraisal of presented research plan and published work. 2) Written submission to IEC (components, essential arguments)

Types of class:	x lectures x seminars and workshops x combined e-learning	x independent work tasks x mentoring

Student obligations						
Praćenje rada studenata:	Class attendance		Research		Practical work	
	Experimental work		Report		(other)	
	Essay	0.5	Seminar paper	0.5	(other)	
	Tests		Oral exam		(other)	
	Written exam	0.5	Project		(other)	

Grading and evaluating student performance in class and at the final exam	Formative assessment during classes (preferably, but not feasible at the moment) and summative assessment (an essay, evaluation of scientific article, a written submission to IEC)		
Required literature (available in the library and via other media)	**Title**	**Number of copies in the library**	**Availability via other media**
	Jonsen AR, Siegler M, Winslade WJ. Clinical ethics. 5. izd. New York: McGraw-Hill, 2002:173-98.		
	Matulić T. Bioetika. Zagreb: GK, 2001. (477 str.)		
	SLU. Priručnik medicinske etike. Zagreb: Medicinska naklada, 2010. (134 str.+ dodatak - Teme iz		

	medicinske etike u Hrvatskoj – 30 str.)		
	Zurak N, ur. Medicinska etika. Zagreb: Merkur, 2007. (357 str.)		
Additional literature	Beauchamp TL, Childress JF. Principles of biomedical ethics. 5. izd. Oxford: Oxford University Press, 2001:283-336. Borovečki A, Lacković Z. Odgovorno ponašanje u znanosti. Zagreb: Medicinska naklada, 2008. (203 str.) Craig RP, Middleton CL, O'Connell LJ. Etički komiteti: praktički pristup. Zagreb: Pergamena, 1998. (196 str.) Fatović-Ferenčić S, Tucak A, ur. Medicinska etika. Zagreb: Medicinska naklada, 2011. (289 str.) Rumboldt Z. Ethical dues in biomedical publications. Acta Med Croatica 2000;53:203-6. Rumboldt Z. Etička pitanja u kliničkim istraživanjima. Vrbosn 2005;9:333-41. Rumboldt Z. Neke natuknice o etičkim dilemama recenziranja. Acta Med Croatica 2008;62:443-6. Rumboldt Z. O nastavi etike na medicinskim fakultetima. CUS 2013;48:404-19. Rumboldt Z. Što je to plagijat u znanosti? Arh Hig Rada Toksikol 2014;65:233-6. Zakonski propisi u RH (NN 121/2003; NN 169/2004; NN 150/2008...)		
Quality assurance methods to ensure achievement of learning outcomes	▪ Analysis of teaching quality by students and teachers (survey) ▪ Analysis of exam pass rates ▪ Reports of the Committee for Control of Teaching Delivery		
Other (in Course proposer's opinion)			

COURSE	**EVIDENCE-BASED RHEUMATOLOGY**					
Code	MEBI03	Year of the program	2			
Course director/s	Prof. Dr. Sc. Jadranka Morović-Vergles	Credits (ECTS)	2			
Associate faculty	Prof. Dr. Sc. Dušanka Martinović-Kaliterna	Types of class (number of hours per semester)	L	S	P	T
			1	10		11
Course status	elective	Percentage of e-learning	0%			
COURSE DESCRIPTION						
Course objectives	Current knowledge and dilemmas about pathogenesis, diagnosis, and treatment of autoimmune disorders on selected examples by using methods of evidence-based medicine (EBM).					
Course enrollment requirements and initial competencies required for the course	First-year courses.					
Expected learning outcomes at the course level (4 to 10 learning outcomes)	The use of EBM methods in clinical research and practice. The use of EBM methods in in rheumatology.					
Course content per	Lecture (1h):Problems in rheumatology today (pathogenesis, diagnosis, and					

<table>
<tr><td>type of class and number of class hours</td><td colspan="6">treatment)

Seminar 1 (2h): Stress and autoimmune disorders

Seminar 2 (2h): Cytokines in RA pathogenesis

Seminar 3 (2h): Pathogenesis and significance of systemic disorders in RA

Seminar 4 (2h): Biologicals in the treatment of autoimmune disorders

Seminar 5 (2h): Significance and reliability of antibodies in diagnosis of autoimmune disorders</td></tr>
<tr><td>Types of class:</td><td colspan="3">☒ lectures
☒ seminars and workshops
☐ practicum
☐ full online course
☐ combined e-learning
☐ field work</td><td colspan="3">☒ independent work tasks
☐ multimedia
☐ laboratory
☐ mentoring
☐ (other)</td></tr>
<tr><td>Student obligations</td><td colspan="6"></td></tr>
<tr><td rowspan="5">Student performance follow-up (provide ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course):</td><td>Class attendance</td><td></td><td>Research</td><td></td><td>Practical work</td><td></td></tr>
<tr><td>Experimental work</td><td></td><td>Report</td><td></td><td>(other)</td><td></td></tr>
<tr><td>Essay</td><td></td><td>Seminar paper</td><td></td><td>(other)</td><td></td></tr>
<tr><td>Tests</td><td></td><td>Oral exam</td><td></td><td>(other)</td><td></td></tr>
<tr><td>Written exam</td><td></td><td>Project</td><td></td><td>(other)</td><td></td></tr>
<tr><td>Grading and evaluating student performance in class and at the final exam</td><td colspan="6">One problem-solving task.</td></tr>
<tr><td rowspan="9">Required literature (available in the library and via other media)</td><td colspan="3">Title</td><td>Number of copies in the library</td><td>Availability via other media</td></tr>
<tr><td colspan="3">Summaries of lectures and seminars</td><td></td><td></td></tr>
<tr><td colspan="3">Bongartz T, Sutton AJ, Sweeting MJ, Buchan I, Matteson EL, Montori V.:Anti-TNF antibody therapy in rheumatoid arthritis and the risk of serious infections and malignancies: systematic review and meta-analysis of rare harmfuleffects in randomized controlled trials JAMA. 2006;295:2275-85. 7</td><td></td><td></td></tr>
<tr><td colspan="3">Firestain G.S. Evolving concepts of rheumatoid

arthritis, Nature 2003;423:356-61.</td><td></td><td></td></tr>
<tr><td colspan="3">http://www.umdnj.edu/camlbweb/rheumatology.html</td><td></td><td></td></tr>
<tr><td colspan="3">http://www.nice.org.uk/guidance/topic/musculoskeletal</td><td></td><td></td></tr>
<tr><td colspan="3"></td><td></td><td></td></tr>
<tr><td colspan="3"></td><td></td><td></td></tr>
</table>

Additional literature	TugwellP, SheaB, Boers M, et al (ed). Evidence based rheumatology, London: Blackwell BMJ Books, 2003		
Quality assurance methods to ensure achievement of learning outcomes	Following up the student performance in seminars; student survey.		
Other (in Course proposer's opinion)			

COURSE	**EVIDENCE-BASED RADIOLOGICAL DIAGNOSIS OF BREAST CANCER**					
Code	MEBI04	Year of the program	2			
Course director/s	Assist. Prof. Dr. Sc. Tade Tadić	Credits (ECTS)	1.5			
Associate faculty		Types of class (number of hours per semester)	L	S	P	T
			2	8		10
Course status	elective	Percentage of e-learning	0%			

COURSE DESCRIPTION

Course objectives	New knowledge about MRI in breast cancer diagnosis. The role of mammography in early detection of breast cancer – mammographic screening. Breast biopsy.	
Course enrollment requirements and initial competencies required for the course	First-year courses.	
Expected learning outcomes at the course level (4 to 10 learning outcomes)	Use of evidence-based diagnostic methods in diagnosis of breast cancer (cost/benefit analysis) in clinical research and practice. Use of breast MRI, mammography, and biopsy as diagnostic EBM methods.	
Course content per type of class and number of class hours	Lecture (2h): MRI in diagnosis of breast cancer: when and why? Seminar 1 (2h): Mammographic screening for breast cancer: results Seminar 2 (2h): Stereotactic vacuum-assisted breast biopsy Seminar 3 (2h): BIRADS (Breast Imaging Reporting and Database System) image lexicon Seminar 4 (2h): CAD (Computer-Aided Diagnosis): is it really helpful in radiological diagnosis of breast disease or not?	
Types of class:	☒ lectures ☒ seminars and workshops ☐ practicum ☐ *full online course* ☐ combined e-learning ☐ field work	☒ independent work tasks ☐ multimedia ☐ laboratory ☐mentoring ☐ (other)
Student obligations		

Student performance follow-up (provide ECTS credits for each activity so that the	Class attendance		Research		Practical work	
	Experimental work		Report		(other)	
	Essay		Seminar paper		(other)	

total number of ECTS credits is equal to the ECTS value of the course)*):*	Tests		Oral exam		(other)	
	Written exam		Project		(other)	
Grading and evaluating student performance in class and at the final exam	Written exam					

	Title	**Number of copies in the library**	**Availability via other media**
Required literature (available in the library and via other media)	Summaries of lectures and seminars		
	Janković S, ur. Mamografija i ultrazvuk dojke (uz tečaj I kategorije SMU). Jedinica za znanstveni rad Kliničke bolnice Split, Split, 2004.		
	Janković S, Tadić T, Fridl-Vidas V, Marotti M, Šimundić I, Buljević V, Bezić J, Tomić S, Grković I. Radiologija dojke. U: Seminari iz kliničke radiologije. Janković S, ur. Split, **2005:671-720.**		
	Janković S, Eterović D, ur. Fizikalne osnove i klinički aspekti medicinske dijagnostike. Medicinska naklada Zagreb, Zagreb, 2002.		
	Morris AE, Liberman L, ed. Breast MRI: Diagnosis and Intervention. New York, Springer, 2005.		

Additional literature	www.imaginis.com		
Quality assurance methods to ensure achievement of learning outcomes	Following-up student performance in seminars; student survey.		
Other (in Course proposer's opinion)			

COURSE	**MINIMALLY INVASIVE SURGERY IN THE TREATMENT OF MALIGNANCIES**					
Code	MEBI05	Year of the program	2			
Course director/s	Prof. Dr. Sc. Zdravko Perko	Credits (ECTS)	1.5			
Associate faculty	Prof. Dr. Sc. Nikica Družijanić, Prof. Dr. Sc. Nenad Ilić	Types of class (number of hours per semester)	L	S	P	T
			2	6	2	10
Course status	elective	Percentage of e-learning	0%			
COURSE DESCRIPTION						
Course objectives	Current knowledge and dilemmas in the endoscopic treatment of certain malignant surgical diseases will be presented by using the methods of evidence-based medicine (EBM) (basic postulates of EBM in endoscopic treatment of malignancies, database search, finding and evaluating relevant literature, basic characteristics of controlled clinical trials, metaanalyes and clinical guidelines. Critical assessment of medical literature in the field). Endoscopic equipment and instruments, pathophysiology of pneumoperitoneum, surgical stress, areas where minimally invasive surgery is most commonly used for the treatment of malignancies: colorectal cancer, transanal endoscopic microsurgery, and thoracoscopic surgery.					
Course enrollment requirements and initial competencies required for the course	First-year courses.					
Expected learning outcomes at the course level (4 to 10 learning outcomes)	Understand the place and role of endoscopic surgery in the treatment of certain malignancies. EBM use of endoscopic surgery in the treatment of malignant diseases of individual organs: • Use of EBM in case of contraindications for endoscopic surgery, decision-making about the type of operation • Evidence based medicine – published data on laparoscopic surgery results, principles of evaluating individual publications • Information and open questions about advantages and disadvantages of endoscopic surgery, advantages and disadvantages of endoscopic vs. open surgery, data in databases Acquiring basic endoscopic surgical skill on a model.					
Course content per type of class and number of class hours	**Introductory lecture**: endoscopic equipment and instruments, pathophysiology of pneumoperitoneum, surgical stress in open and endoscopic surgeries – effect of survival, costs of each type of treatment. Seminar 1. **Laparoscopic operation for colorectal cancer:** oncologic standards of endoscopic treatment of colorectal cancer, indications and contraindications, comparison of laparoscopic and open surgery results, early and late complications,					

	recurrence and survival. Differences of strategy, technical characteristics, and manner of performing laparoscopic operations for colorectal cancer. Seminar 2. **Videoendoscopic surgery of thorax for malignancies.** Minimally invasive procedures in thoracic surgery for cancer, lung cancer treatment, exploration and biopsy, indications and contraindications, survival in comparison with open surgery. Seminar 3. **Transanal endoscopic microsurgery** Indications, contraindications, advantages and disadvantages of local therapy of benign and malignant rectal tumors. Preoperative staging, transrectal ultrasound. Comparison of results of these types of surgeries, quality of life of patients in comparison with classic operations, adjuvant postoperative therapy. **Practicum** (*Laboratory for experimental surgery*). Introduction to endoscopic equipment and instruments. Generating a video-image. Devices needed for endoscopic surgery performance. Basic videoendoscopic surgical skills on endoscopic trainer – phantom: cutting, ligature, stapling, etc.
Types of class:	☒ lectures ☒ seminars and workshops ☒ practicum ☐ *full online course* ☐ combined e-learning ☐ field work ☐ independent work tasks ☐ multimedia ☐ laboratory ☐mentoring ☐ (other)
Student obligations	

Student performance follow-up (provide ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)*:*						
	Class attendance		Research		Practical work	
	Experimental work		Report		(other)	
	Essay		Seminar paper		(other)	
	Tests		Oral exam		(other)	
	Written exam		Project		(other)	

Grading and evaluating student performance in class and at the final exam	Written exam (multi-choice questions)

Required literature (available in the library and via other media)	**Title**	**Number of copies in the library**	**Availability via other media**
	1. Perko Z i sur. Endoskopska kirurgija – Instrumenti i oprema; Knjigotisak, Split, 2001. *Literatura je dostupna u Knjižnici fakulteta i on-line.*		
	2. CD i knjiga predavanja Tečaja laparoskopske kolorektalne kirurgije 2006		
	3. Neugebauer et. al. EAES Guidelines for Endoscopic Surgery. Springer, Berlin 2006.		
	4. Handouts		
	5. http://www.eaes-eur.org/consstatem/pneumoshort.html		
	6. http://www.eaes-		

	eur.org/consstatem/rescolcar.html		
	7. http://www.sages.org/sagespublication.php?doc=32		
Additional literature	A course book: Fall Endoscopic School 2003 Literature is available in the School's library and on a CD		
Quality assurance methods to ensure achievement of learning outcomes	Anonymous questionnaire		
Other (in Course proposer's opinion)			

COURSE	**RETINOPATHIES**					
Code	MEBI06	Year of the program	2			
Course director/s	Prof. Dr. Sc. Milan Ivanišević	Credits (ECTS)	1.5			
Associate faculty	Prof. Dr. Sc. Kajo Bućan	Types of class (number of hours per semester)	L	S	P	T
			2	8		10
Course status	elective	Percentage of e-learning	0%			
COURSE DESCRIPTION						
Course objectives	Current knowledge and dilemmas about pathogenesis, diagnosis, and treatment of retinopathies and diseases that cause them will be presented on selected examples by using evidence-based medicine (EBM) methods. The fundus of the eye is the only site on the body where we can directly see in vivo all changes on blood vessels, which commonly reflect the pathological changes in the entire organism. On the basis to the changes on the fundus, we may conclude that some vascular, metabolic, inflammatory, or hematopoietic changes are happening in the body. The most important and most commonly used method of fundus examination is ophthalmoscopy, and additional examinations include fluorescent angiography, oct and eye ultrasound.					
Course enrollment requirements and initial competencies required for the course	First-year courses.					
Expected learning outcomes at the course level (4 to 10 learning outcomes)	Use of EBM methods in clinical research and practice. Use of EBM methods in ophthalmology.					
Course content per type of class and number of class hours	Lecture (2h): Current etiopathogenesis, diagnosis, and treatment of retinopathies. Seminar 1 (2h): Hypertensive retinopathy (which tells a lot about the state of hypertension, because we can directly observe blood vessels). Seminar 2 (2h): Diabetic retinopathy (the most common cause of blindness in working-age population in developed countries: epidemiology, clinical presentation, diagnosis, therapy, relation to other late vascular complications of diabetes,					

	especially diabetic nephropathy). Seminar 3 (2h): Occlusive diseases of the retina, i.e. occlusion of the central retinal artery and vein (and relation with apoplexy and mortality). Seminar 4 (2 h): inflammatory retinopathies (bacterial, viral, fungal), retinopathies caused by hematological and lymphatic diseases (leukemia, anemia, thrombocytopenia), premature retinopathy, and complications on the retina caused by systemic medicines.

Types of class:	☒ lectures ☒ seminars and workshops ☒ practicum ☐ *full online course* ☐ combined e-learning ☐ field work	☒ independent work tasks ☐ multimedia ☒ laboratory ☒ mentoring ☐ (other)

Student obligations						
Student performance follow-up (provide ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)*:*	Class attendance		Research		Practical work	
	Experimental work		Report		(other)	
	Essay		Seminar paper		(other)	
	Tests		Oral exam		(other)	
	Written exam		Project		(other)	
Grading and evaluating student performance in class and at the final exam	Written exam					

	Title	**Number of copies in the library**	**Availability via other media**
Required literature (available in the library and via other media)	Ivanišević M. Summaries of lectures and seminars, 2007. Šikić J. Oftalmologija. Zagreb: Narodne novine, 2003. Čupak K. Oftalmologija. Zagreb: Nakladni zavod Globus, 2004.		
	www.plivazdravlje.hr		
	www.meduni-graz.at		
	www.pedijatrija-sa.ba		
	www.medicinar.hr		

Additional literature	Kanski JJ. Clinical ophthalmology. A systematic approach. Edinburgh: Butterworth Hainemann, 2003. Ryan SJ. Retina. St. Louis: Mosby, 1994.
Quality assurance methods to ensure achievement of learning outcomes	Teaching quality evaluation by students and faculty, Analysis of exam pass rates, Report of the Committee for Control of Teaching Delivery.
Other (in Course proposer's opinion)	

COURSE	**GASTROENTEROHEPATOLOGY (GEH)**					
Code	MEBI07	Year of the program	2			
Course director/s	Prof. Dr. Sc. Izet Hozo	Credits (ECTS)	2			
Associate faculty	Prof. Dr. Miroslav Šimunić, Prof. Dr. Ante Tonkić, MSc. Tonka Piplović, MSc. Gorana Trgo, Assist. Prof. Dr. Sc. Šundov Željko	Types of class (number of hours per semester)	L	S	P	T
			1	10		11
Course status	elective	Percentage of e-learning	0%			
COURSE DESCRIPTION						
Course objectives	New knowledge about etiopathogenesis, diagnosis, and treatment of gastroenterohepatic diseases, based on EBM principles					
Course enrollment requirements and initial competencies required for the course	First-year courses.					
Expected learning outcomes at the course level (4 to 10 learning outcomes)	Use of EBM methods in clinical research and practice. Use of EBM methods in gastroenterohepatology.					
Course content per type of class and number of class hours	Introduction – new information on etiopathogenesis and therapy of GEH diseases (1 hour). Seminar 1: Inflammatory bowel diseases – new information on etiopathogenesis and therapy (2 hours). Seminar 2: GERD and ulcer disease - new information on etiopathogenesis and therapy (2 hours). Seminar 3: Liver cirrhosis - new information on etiopathogenesis and therapy (2 hours). Seminar 4: Colorectal cancer - new information on etiopathogenesis and therapy (2 hours). Seminar 5: Diagnostic methods in GEH - new information (2 hours).					
Types of class:	☒ lectures ☒ seminars and workshops ☒ practicum	☒ independent work tasks ☐ multimedia ☒ laboratory				

	☐ *full online course* ☐ combined e-learning ☐ field work	☒ mentoring ☐ (other)

Student obligations						
Student performance follow-up (provide ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)*):*	Class attendance		Research		Practical work	
	Experimental work		Report		(other)	
	Essay		Seminar paper		(other)	
	Tests		Oral exam		(other)	
	Written exam		Project		(other)	
Grading and evaluating student performance in class and at the final exam	Written and oral exam					

	Title	**Number of copies in the library**	**Availability via other media**
Required literature (available in the library and via other media)	Miše S, ***Hozo I.*** Hitna stanja u gastroenterologiji. str. 187. Hrvatsko gastroenterološko društvo-ogranak Split, 1998. .		
	Hozo I, Miše S. Odabrana poglavlja iz gastroenterologije. str. 409. Hrvatsko gastroenterološko društvo-ogranak Split, 1999.		
	Hozo I, Karelović D. Praktična ultrasonografija, HGD, str.490, HGD -ogranak Split 2004.		
Additional literature	http://gateway.ut.ovid.com/gw1/ovidweb.cgi (Cochrane database) http://gateway.ut.ovid.com/gw1/ovidweb.cgi?New+Database=Single|4&S=IDNJHKELDAOHIM00 (EBM Reviews - Cochrane Central Register of Controlled Trials) Vucelić Boris : Gastroenterologija, 2005 Medicinska knjiga		
Quality assurance methods to ensure achievement of learning outcomes	Anonymous questionnaire at the end of the course.		
Other (in Course proposer's opinion)			

COURSE	**FORENSIC MEDICAL APPROACH TO ASSESSMENT AND TREATMENT OF**

	INPATIENTS					
Code	MEBI08	Year of the program	2			
Course director/s	Prof. Dr. Sc. Marija Definis-Gojanović	Credits (ECTS)	1.5			
Associate faculty	Prof. Dr. Sc. Davorka Sutlović, dipl. eng. chem., Assist. Prof. Dr. Sc. Ilza Salamunić, dipl. eng. Biochem.	Types of class (number of hours per semester)	L	S	P	T
			2	8		10
Course status	elective	Percentage of e-learning	0%			

COURSE DESCRIPTION					
Course objectives	Quite a few people are hospitalized for violence-related injuries. Althouth the medical treatment in such cases is the same as in cases where person requires treatment for different diseases, the approach of hospital staff to injured persons requires additional actions that will become clearly important in the later criminal and civil law suits. Problems will be illustrated on examples from evidence-based medical practice.				
Course enrollment requirements and initial competencies required for the course	First-year courses.				
Expected learning outcomes at the course level (4 to 10 learning outcomes)	Use of principles and techniques of forensic science in evaluation of clinical patients. Understanding the role and significance of the first examination of a poisoned or traumatized patient, treating potential evidence material (taking and storing clothes and objects, biological fluid and tissue samples), correct keeping of detailed medical records; adopting the rules of conduct in physician-patient/relatives/police/court relationships.				
Course content per type of class and number of class hours	P (2 h): Approach to injured persons from the first examination to court epilogue. S 1 (2 h): Poisoning: assessment of condition; sample collection; interpretation of analysis results. S 2 (2 h): Detecting and proving the poisoning (chemical and biochemical analyses). S 3 (2 h): Traumatized patients: first examination, condition and procedures before, during, and after treatment; complications of hospital treatment. S 4 (2 h): Legal aspects: medical records, how a physician should treat a patient; relationship between a physician and law enforcement and judiciary**.**				
Types of class:	☒ lectures ☒ seminars and workshops ☐ practicum ☐ *full online course* ☐ combined e-learning ☐ field work		☒ independent work tasks ☐ multimedia ☐ laboratory ☐ mentoring ☐ (other)		
Student obligations					
Student performance follow-up (provide ECTS credits for each activity so that the	Class attendance		Research		Practical work	
	Experimental work		Report		(other)	
	Essay		Seminar paper		(other)	

total number of ECTS credits is equal to the ECTS value of the course)*:*	Tests		Oral exam		(other)	
	Written exam		Project		(other)	
Grading and evaluating student performance in class and at the final exam	Solving one EBM task.					

	Title	**Number of copies in the library**	**Availability via other media**
Required literature (available in the library and via other media)	Anderson WR. Forensic science in clinical medicine. Lippincott-Raven, 1998.		
	Duraković Z, i sur. Klinička toksikologija. Zagreb: Grafos, 2000.		
	http://ebm.bmj.com//collections		
Additional literature	Payne-James J, Busuttil A, Smock W. Forensic Medicine –Clinical and Pathological Aspects. San Francisco: GMM, 2003. Moffat AC, Osselton MD, Widdop B. Clarke's Analysis of Drugs and Poisons, 3rd ed. London: Pharmaceutical Press, 2004.		
Quality assurance methods to ensure achievement of learning outcomes	Teaching quality evaluation by students and faculty, following up student performance in seminars and exam pass rates, Reports of the Committee for Control of Teaching Delivery, extramural evaluation		
Other (in Course proposer's opinion)			

COURSE	**THE ROLE OF PHYSICIAN IN PREVENTION OF TORTURE AND INHUMAN OR DEGRADING TREATMENT**					
Code	MEBI09	Year of the program	2			
Course director/s	Prof. Dr. Sc. Marija Definis-Gojanović	Credits (ECTS)	1.5			
Associate faculty		Types of class (number of hours per semester)	L	S	P	T
			2	8		10
Course status	elective	Percentage of e-learning	0%			
COURSE DESCRIPTION						
Course objectives	Given that the individual and collective violence against another person, group, or whole population is increasing, the role and obligations of physicians in this context are more and more discussed. Are physicians educated enough and personally ready to face the reality of frequent discrepancies, even absolute contradictions,					

	between the conscience and ethical principles, moral doubts, orders from the superiors, and legal regulations on the approach to the injured and the people at places where they were potentially or actually exposed to torture and inhuman and degrading treatment? Current knowledge, guidelines, and numerous doubts will be presented through the selected examples by using methods of evidence-based medicine (EBM).
Course enrollment requirements and initial competencies required for the course	First-year courses
Expected learning outcomes at the course level (4 to 10 learning outcomes)	Understanding the complexity of situations where physicians and other health care workers are faced with possible abuse and violation of human rights. Adopting basic guidelines in decision-making process when dealing with abused, tortured, and/or humiliated persons, primarily with freedom-deprived persons; learning about different organizations and documents related to the topics of this course.
Course content per type of class and number of class hours	L (2 h) – Physicians as responsible citizens; professional obligation in detection, documentation, and prevention of human rights violation. S 1 (2 h) – What constitutes and initiates the abuse of human rights, accepted standards of medical ethics, position? S 2 (2 h) – The role and tasks of physicians in special situations: clinical examinations for injuries and torture, prison physicians, physicians in centers for immigrants, behavior during and after the war, when facing death. S 3 (2 h) – National and international legal mechanisms, significance of professional associations (physician rights, international bodies, codes, declarations, resolutions). S 4 (2 s) – Neglect and abuse in institutions.
Types of class:	☒ lectures ☒ seminars and workshops ☐ practicum ☐ *full online course* ☐ combined e-learning ☐ field work ☒ independent work tasks ☐ multimedia ☒ laboratory ☒ mentoring ☐ (other)

Student obligations						
Student performance follow-up (provide ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)*:*	Class attendance		Research		Practical work	
	Experimental work		Report		(other)	
	Essay		Seminar paper		(other)	
	Tests		Oral exam		(other)	
	Written exam		Project		(other)	
Grading and evaluating student performance in class and at the	Processing the topics in seminars.					

final exam			
Required literature (available in the library and via other media)	**Title**	**Number of copies in the library**	**Availability via other media**
	BMA. The medical profession & human rights. Zed Books, 2001.		
	European network of scientific co-operation on medicine and human rights. The human rights, ethical and moral dimensions of health care. Council of Europe Publishing, 1998.		
	www.irct.org		
	www.phrusa.org		
Additional literature	McLay WDS. Clinical Forensic medicine, 2nd ed. GMM, 1996. Smith RKM. Textbook on international human rights. Oxford University Press, 2005.		
Quality assurance methods to ensure achievement of learning outcomes	Teaching quality evaluation by students and faculty, following up student performance in seminars and exam pass rates, Reports of the Council for Control of Teaching Delivery, extramural evaluation		
Other (in Course proposer's opinion)			

COURSE	**EVIDENCE-BASED PEDIATRICS**					
Code	MEBI11	Year of the program	2			
Course director/s	Prof. Dr. Sc. Julije Meštrović	Credits (ECTS)	2			
Associate faculty	Assist. Prof. Dr. Sc. Joško Markić Assist. Prof. Dr. Sc. Branka Polić, dr. med.	Types of class (number of hours per semester)	L	S	P	T
			1	10		11
Course status	elective	Percentage of e-learning	0%			
COURSE DESCRIPTION						
Course objectives	First					
Course enrollment requirements and initial competencies required for the course	First-year courses.					
Expected learning outcomes at the course level (4 to	Use of EBM methods in clinical research and treatment of patients. Use of EBM methods in the areas of pediatrics that are important for understanding					

<table>
<tr><td>10 learning outcomes)</td><td colspan="6">of the modern pediatrics and expected changes that will require adjustments in education and system of health care for pediatric patients.</td></tr>
<tr><td>Course content per type of class and number of class hours</td><td colspan="6">Lecture (1 h): EBM and challenges in modern pediatrics and their management

Seminar 1 (2 h): Newborn at risk of death

Seminar 2 (2 h): Pediatric reanimatology

Seminar 3 (2 h): Enteral and parenteral nutrition

Seminar 4 (2 h): Scoring systems in pediatrics

Seminar 5 (2 h): Children with special health care needs</td></tr>
<tr><td>Types of class:</td><td colspan="3">☒ lectures
☒ seminars and workshops
☐ practicum
☐ full online course
☐ combined e-learning
☐ field work</td><td colspan="3">☐ independent work tasks
☐ multimedia
☐ laboratory
☐ mentoring
☐ (other)</td></tr>
<tr><td>Student obligations</td><td colspan="6"></td></tr>
<tr><td rowspan="5">Student performance follow-up (provide ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course):</td><td>Class attendance</td><td></td><td>Research</td><td></td><td>Practical work</td><td></td></tr>
<tr><td>Experimental work</td><td></td><td>Report</td><td></td><td>(other)</td><td></td></tr>
<tr><td>Essay</td><td></td><td>Seminar paper</td><td></td><td>(other)</td><td></td></tr>
<tr><td>Tests</td><td></td><td>Oral exam</td><td></td><td>(other)</td><td></td></tr>
<tr><td>Written exam</td><td></td><td>Project</td><td></td><td>(other)</td><td></td></tr>
<tr><td>Grading and evaluating student performance in class and at the final exam</td><td colspan="6">One problem-solving task.</td></tr>
<tr><td rowspan="10">Required literature (available in the library and via other media)</td><td colspan="3">Title</td><td>Number of copies in the library</td><td>Availability via other media</td></tr>
<tr><td colspan="3">Prepared original research articled for individual thematic units</td><td></td><td></td></tr>
<tr><td colspan="3">Nelson. Textbook of pediatrics. 17th ed. Philadelphia: Saunders; 2004.</td><td></td><td></td></tr>
<tr><td colspan="3">http://aappolicy.aappublications.org/</td><td></td><td></td></tr>
<tr><td colspan="3">http://www.ebmny.org/</td><td></td><td></td></tr>
<tr><td colspan="3">http://www.cebm.net/</td><td></td><td></td></tr>
<tr><td colspan="3"></td><td></td><td></td></tr>
<tr><td colspan="3"></td><td></td><td></td></tr>
<tr><td colspan="3"></td><td></td><td></td></tr>
<tr><td>Additional literature</td><td colspan="6">Paediatric life support, European Resuscitation Council Guidelines for resuscitation. Resuscitation 2005</td></tr>
<tr><td>Quality assurance</td><td colspan="6">Following-up student performance in seminars; student survey.</td></tr>
</table>

methods to ensure achievement of learning outcomes	
Other (in Course proposer's opinion)	

COURSE	**EVIDENCE-BASED NEUROOPHTHALMOLOGY**					
Code	MEBI16	Year of the program	2			
Course director/s	Assist. Prof. Dr. Sc. Ljubo Znaor	Credits (ECTS)	1.5			
Associate faculty	Assist. Prof. Dr. Sc. Meri Matijaca	Types of class (number of hours per semester)	L	S	P	T
			2	8		10
Course status	elective	Percentage of e-learning	0%			

COURSE DESCRIPTION

Course objectives	Etiopathogenesis, diagnosis, and treatment of inflammatory (demyelinating) vascular diseases of the optic nerve. Optic nerve tumors.
Course enrollment requirements and initial competencies required for the course	First-year courses.
Expected learning outcomes at the course level (4 to 10 learning outcomes)	Use of the methods of evidence-based medicine (EBM) in clinical practice. Use of EBM methods in neuroophthalmology.
Course content per type of class and number of class hours	Lecture (2 h): Current views of etiopathogenesis, diagnosis, and therapy of the optic nerve diseases Seminar 1 (2 h): Optic neuritis Seminar 2 (2 h): Demyelinating CNS diseases: multiple sclerosis Seminar 3 (2 h): Vascular diseases of the optic nerve – ischemic neuropathy of the optic nerve, hypertensive neuropathy of the optic nerve Seminar 4 (2 h): Optic nerve tumors – current knowledge of diagnosis and treatment
Types of class:	☒ lectures ☒ seminars and workshops ☐ practicum ☐ *full online course* ☐ combined e-learning ☐ field work ☐ independent work tasks ☐ multimedia ☐ laboratory ☐ mentoring ☐ (other)
Student obligations	

Student performance follow-up (provide ECTS credits for each activity so that the	Class attendance		Research		Practical work	
	Experimental work		Report		(other)	
	Essay		Seminar		(other)	

total number of ECTS credits is equal to the ECTS value of the course)*:*			paper			
	Tests		Oral exam		(other)	
	Written exam		Project		(other)	
Grading and evaluating student performance in class and at the final exam	Written exam					

	Title	Number of copies in the library	Availability via other media
Required literature (available in the library and via other media)	Summaries of lectures and seminars		
	Balcer LJ. Optic neuritis. N Engl J Med 2006;354(12):1273-8.		
	Arnold AC. Evolving management of optic neuritis and multiple sclerosis., Am J Ophthalmol 2005;139:1101-8.		
	Mathews MK. Nonarteritic anterior ischemic optic neuropathy.Curr Opin Ophthalmol 2005;16:341-5.		
	Turbin RE,Pokorny K. Diagnosis and treatment of orbital optic nerve sheath meningeioma Cancer Control 2004;11:334-41.		
	http://gateway.ut.ovid.com/gw2/ovidweb.cgi?Titles+Display=2&S=IDNJHKELJEHOBP00D		
Additional literature	Savino PJ , Danesh-Meyer H. Color Atlas &Synopsis of Clinical Ophthalmology-Wills Eye Hospital- Neuro-ophthalmology, Mc Graw-Hill, 2003.		
Quality assurance methods to ensure achievement of learning outcomes	Following-up student performance in seminars.		
Other (in Course proposer's opinion)			

COURSE	**GENOTYPIZATION AND PHENOTYPIZATION IN GLYCOMEDICINE**					
Code	MEBI18	Year of the program	2			
Course director/s	Prof. Dr. Sc. Anita Markotić	Credits (ECTS)	1.5			
Associate faculty	Mr. sc. Roko Martinić, dr. med., mr. sc. Maja Tomasović, dr. med., Assist. Prof. Dr. Sc. Vedrana Čikeš Čulić, dipl.	Types of class (number of hours per semester)	L	S	P	T
			8		2	10

	ing. med. biok.					
Course status	elective	Percentage of e-learning	0%			

COURSE DESCRIPTION

Course objectives	
Course enrollment requirements and initial competencies required for the course	First-year courses.
Expected learning outcomes at the course level (4 to 10 learning outcomes)	Students are encouraged to develop critical approach to the basic biological problems and to work independently. Students will learn how a disorder in specific gene expression leads to changes in glycophenotype and how to use that knowledge in diagnosis and treatment of different diseases. Students will be introduced to scientific research done in our laboratory, in the challenging field of biological sciences.
Course content per type of class and number of class hours	Lectures (L) and practicum (P) • Composition of MHC genes and levels of immunogenetic kinship (2 h L) • Principles of determining human leukocyte antigens (HLA) and their practical, clinical, and biological importance (1 h P) • Gylcoantigens: receptors and ligands (2 h L) • Glycosphingolipid metabolites: mediators of apoptosis, growth and cell division (2 h L) • Glycomedical basis of CNS malformations (2 h L) Determination of glycoantigens by flow cytometry (1 h P)

Types of class:	☒ lectures ☐ seminars and workshops ☒ practicum ☐ *full online course* ☐ combined e-learning ☐ field work	☐ independent work tasks ☐ multimedia ☐ laboratory ☐ mentoring ☐ (other)
Student obligations		

Student performance follow-up (provide ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)*):*						
	Class attendance		Research		Practical work	
	Experimental work		Report		(other)	
	Essay		Seminar paper		(other)	
	Tests		Oral exam		(other)	
	Written exam		Project		(other)	

Grading and evaluating student performance in class and at the	Written exam

final exam			
Required literature (available in the library and via other media)	**Title**	**Number of copies in the library**	**Availability via other media**
	Varki, Ajit; Cummings, Richard; Esko, Jeffrey; Freeze, Hudson; Hart, Gerald; Marth, Jamey, Essentials of Glycobiology. 1st ed. Plainview (NY): Cold Spring Harbor Laboratory Press; 1999. - U POTPUNOSTI DOSTUPNA NA PUBMED-u		
Additional literature	A large number of available original and review articles.		
Quality assurance methods to ensure achievement of learning outcomes	Teaching quality evaluation by students and faculty, Analysis of exam pass rates, Reports of the Council for Control of Teaching Delivery, Extramural evaluation (by quality control teams from the National Quality Assurance Agency, inclusion in TEEP).		
Other (in Course proposer's opinion)			

COURSE	**EVIDENCE-BASED MOLECULAR MEDICINE**					
Code	MEBI20	Year of the program	2			
Course director/s	Academician Stjepan Gamulin	Credits (ECTS)	1.5			
Associate faculty	Assist. Prof. Dr. Sc. Teo Bradarić	Types of class (number of hours per semester)	L	S	P	T
			2	8		10
Course status	elective	Percentage of e-learning	0%			
COURSE DESCRIPTION						
Course objectives	Using of evidence-based medicine (EBM), to show how to apply the knowledge in molecular medicine, especially DNA pathology, in clinical practice (DNA damage, DNA repair disorders, mutations, and genotype-phenotype relationship), disorders in regulation of gene expression, molecular pathophysiology, diagnosis and					

<table>
<tr><td></td><td colspan="6">treatment of hereditary metabolic diseases, and malignant transformation and growth.</td></tr>
<tr><td>Course enrollment requirements and initial competencies required for the course</td><td colspan="6">First-year courses.</td></tr>
<tr><td>Expected learning outcomes at the course level (4 to 10 learning outcomes)</td><td colspan="6">Complete overview and interpretation of etiopathogenetic processes, with the vertical integration of disorders from a macromolecular to organism level; understanding the variability of pathological processes depending on the reaction of individual patient

Knowledge of the procedures of unbiased selection of research, diagnostic, and treatment methods based on evidence.</td></tr>
<tr><td>Course content per type of class and number of class hours</td><td colspan="6">Molecular medicine and clinical practice (2 h L)

DNA damage, DNA repair, mutations (2 h S),

Genotype-phenotype relationship (2 h S).

Disorders in the regulation of gene expression (2 h S)

Treatment methods based on molecular medicine – clinical application (2 h S)</td></tr>
<tr><td>Types of class:</td><td colspan="3">☒ lectures
☒ seminars and workshops
☐ practicum
☐ full online course
☐ combined e-learning
☐ field work</td><td colspan="3">☐ independent work tasks
☐ multimedia
☐ laboratory
☐ mentoring
☐ (other)</td></tr>
<tr><td>Student obligations</td><td colspan="6"></td></tr>
<tr><td rowspan="5">Student performance follow-up (provide ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course):</td><td>Class attendance</td><td></td><td>Research</td><td></td><td>Practical work</td><td></td></tr>
<tr><td>Experimental work</td><td></td><td>Report</td><td></td><td>(other)</td><td></td></tr>
<tr><td>Essay</td><td></td><td>Seminar paper</td><td></td><td>(other)</td><td></td></tr>
<tr><td>Tests</td><td></td><td>Oral exam</td><td></td><td>(other)</td><td></td></tr>
<tr><td>Written exam</td><td></td><td>Project</td><td></td><td>(other)</td><td></td></tr>
<tr><td>Grading and evaluating student performance in class and at the final exam</td><td colspan="6">Written exam, one problem-solving task</td></tr>
<tr><td rowspan="3">Required literature (available in the library and via other media)</td><td colspan="3">Title</td><td>Number of copies in the library</td><td>Availability via other media</td></tr>
<tr><td colspan="3">Summaries of lectures and seminars</td><td></td><td></td></tr>
<tr><td colspan="3">S. Gamulin, M. Marušić, Z. Kovač i sur. Patofiziologija, VI. izdanje, Zagreb: Medicinska naklada 2005. poglavlja: Poremećaji građe i funkcije</td><td></td><td></td></tr>
</table>

	makromolekula; 21. Zloćudna preobrazba i rast		
	S. Gamulin, The Impact of Molecular Medicine on Pathophysiology, Medical Practice and Education, Croat Med J 2003;44: 374-85		
	www.ncbi.nlm.nih.gov/Omim/allresources.html		
Additional literature	T. M. Cox Molekularna biologija u medicini. Zagreb, Medicinska naklada 2000. Cooper GM, Hausman RE: Stanica, molekularni pristup (Croatian prijevod) Zagreb, Medicinska naklada, 2004		
Quality assurance methods to ensure achievement of learning outcomes	Student survey.		
Other (in Course proposer's opinion)			

COURSE	**EVIDENCE-BASED OBSTETRICS**					
Code	MEBI24	Year of the program	2			
Course director/s	Prof. Dr. Sc. Vedran Stefanović	Credits (ECTS)	2			
Associate faculty		Types of class (number of hours per semester)	L	S	P	T
			2	10		12
Course status	elective	Percentage of e-learning	0%			
COURSE DESCRIPTION						
Course objectives	Current knowledge and dilemmas about the preconception period, ultrasound and invasive prenatal diagnosis, diagnosis and treatment of fetal anomalies and emergencies in modern obstetrics will be presented on selected examples by use the methods of evidence-based medicine (EBM).					
Course enrollment requirements and initial competencies required for the course	First-year courses.					
Expected learning outcomes at the course level (4 to 10 learning outcomes)	Use of EBM methods in clinical research and practice. Use of EBM methods in obstetrics.					
Course content per type of class and number of class hours	Lecture (2 h): Current problems in obstetrics (interventions in preconceptional stage, preterm labor, minimally invasive diagnostics and treatment of fetal anomalies, fetus as a patient, fetal hypoxia, massive bleeding in obstetrics). Seminar 1 (2 h): The role of general practitioner and obstetrician in planning a high risk pregnancy (diabetes, hypertension, epilepsy, intrauterine growth restriction in					

<table>
<tr><td></td><td colspan="6">previous pregnancy, thrombophilia, obesity)

Seminar 2 (2 h): Prenatal diagnosis of fetal anomalies and intrauterine treatment of the fetus (modern ultrasound diagnostics, intrauterine interventions)

Seminar 3 (2 h): Diagnosis and prevention of preterm labor

Seminar 4 (2 h): Massive bleeding in obstetrics (modern surgical and radiological methods)

Seminar 5 (2 h): EBM fetal surveillance</td></tr>
<tr><td>Types of class:</td><td colspan="3">☒ lectures
☒ seminars and workshops
☐ practicum
☐ full online course
☐ combined e-learning
☐ field work</td><td colspan="3">☐ independent work tasks
☐ multimedia
☐ laboratory
☐ mentoring
☐ (other)</td></tr>
<tr><td>Student obligations</td><td colspan="6"></td></tr>
<tr><td rowspan="5">Student performance follow-up (provide ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course):</td><td>Class attendance</td><td></td><td>Research</td><td></td><td>Practical work</td><td></td></tr>
<tr><td>Experimental work</td><td></td><td>Report</td><td></td><td>(other)</td><td></td></tr>
<tr><td>Essay</td><td></td><td>Seminar paper</td><td></td><td>(other)</td><td></td></tr>
<tr><td>Tests</td><td></td><td>Oral exam</td><td></td><td>(other)</td><td></td></tr>
<tr><td>Written exam</td><td></td><td>Project</td><td></td><td>(other)</td><td></td></tr>
<tr><td>Grading and evaluating student performance in class and at the final exam</td><td colspan="6">One problem-solving task.</td></tr>
<tr><td rowspan="8">Required literature (available in the library and via other media)</td><td colspan="3">Title</td><td>Number of copies in the library</td><td>Availability via other media</td></tr>
<tr><td colspan="3">Summaries of lectures and seminars</td><td></td><td></td></tr>
<tr><td colspan="3">Brundage SC. Preconception health care. Am Fam Physician 2002;65:2507-14.

The Fetus as a Patient: Prenatal Diagnosis and Fetal Therapy
http://www.emedicine.com/ped/topic2953.htm</td><td></td><td></td></tr>
<tr><td colspan="3">Goldenberg RL. The management of preterm labor. Obstet Gynecol 2002;100:2020-37.</td><td></td><td></td></tr>
<tr><td colspan="3">Zeeman GG et al.A blueprint for obstetric critical care.Am J Ob Gyn 2003;188:532-36.</td><td></td><td></td></tr>
<tr><td colspan="3">Zeeman GG. Obstetric critical care: a blueprint for improved outcomes. Crit Care Med 2006;34.208-14.</td><td></td><td></td></tr>
<tr><td colspan="3">Mousa et al. Major postpartum haemorrhage.</td><td></td><td></td></tr>
</table>

	Curr Opin Obstet Gynecol 2001;13:595-603		
	Evidence – based Obstetrics & Gynecology – izabrani clanci http://www.harcourt-international.com/journals/ebog/default.cfm		
Additional literature	http://www.obgmanagement.com/default.asp		
Quality assurance methods to ensure achievement of learning outcomes	Following-up student performance in seminars; student survey.		
Other (in Course proposer's opinion)			

COURSE	**CLINICAL PHARMACOLOGY**					
Code	MEBI25	Year of the program	2			
Course director/s	Prof. Dr. Sc. Zvonko Rumboldt	Credits (ECTS)	2			
Associate faculty	Prof. Dr. Sc. Jugoslav Bagatin, Assist. Prof. Dr. Sc. Nediljko Pivac	Types of class (number of hours per semester)	L	S	P	T
			4	6		10
Course status	elective	Percentage of e-learning	0%			
COURSE DESCRIPTION						
Course objectives	Applying knowledge of clinical pharmacology in everyday practice. Verifying data on pharmacokinetics, pharmacodynamics, and interactions. Side effects. Pharmacoeconomy.					
Course enrollment requirements and initial competencies required for the course	First-year courses.					
Expected learning outcomes at the course level (4 to 10 learning outcomes)	Use of the methods of evidence-based medicine (EBM) in the selection of the most adequate drugs, dosage, and administration. Differentiating between innovative and promotional data.					
Course content per type of class and number of class hours	Lecture (2 h). Pharmacokinetics, pharmacodynamics, and interactions. Lecture (2 h). Side effects. Pharmacoeconomics. Drug development. Seminar (2 h). The role of β blockers in the modern treatment of arterial hypertension: controversies. Seminar (2 h). Advantages and shortcomings of fixed-dose combination medications. Polypill? Seminar (1 h). Selection of antirheumatic agents in the treatment of arthrosis. Seminar (1 h). Prophylactic administration of antibiotics.					

Types of class:	☒ lectures ☒ seminars and workshops ☐ practicum ☐ *full online course* ☐ combined e-learning ☐ field work	☐ independent work tasks ☐ multimedia ☐ laboratory ☐ mentoring ☐ (other)

Student obligations						
Student performance follow-up (provide ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)*:*	Class attendance		Research		Practical work	
	Experimental work		Report		(other)	
	Essay		Seminar paper		(other)	
	Tests		Oral exam		(other)	
	Written exam		Project		(other)	
Grading and evaluating student performance in class and at the final exam	Filling out the adverse reaction report form. Drafting a research plan for testing a new antihistaminic drug					

	Title	Number of copies in the library	Availability via other media
Required literature (available in the library and via other media)	Vrhovac B (ur):Liječenje internističkih bolesti str 245-270 u Vrhovac B i sur. Interna medicina. 3. izd. Naklada Ljevak, Zagreb 2003		
	Sackett DL, Richardson WS, Rosenberg W, Haynes RB. Evidence-based medicine. London: Churchill Livingstone, 1997:79-156.		
	Speight TM, Holford NHG, ur. Avery's drug treatment. 4. izd. Auckland: Adis,1997:1-549.		
Additional literature	Rumboldt Z. Odabrana poglavlja iz terapije. 4. izd. Split: KBC, 1992:1-103. Beers MH, Porter RS, Jones TV, Kaplan JL, Berkwits M. The Merck manual od diagnosis and therapy. 18. izd. Whitehouse Station: Merck RL, 2006:2514-45.		
Quality assurance methods to ensure achievement of learning outcomes	Student survey; analysis of exam pass rates.		
Other (in Course proposer's opinion)			

COURSE	EVIDENCE-BASED NEPHROLOGY					
Code	MEBI26	Year of the program	2			
Course director/s	Prof. Dr. Sc. Dragan Ljutić	Credits (ECTS)	1.5			
Associate faculty	Dr. sc. Milenka Šain, Tomislav Filipović, dr. med., Dijana Borić, dr. med., Gordan Pehar, dr. med.	Types of class (number of hours per semester)	L	S	P	T
			2	8		10
Course status	elective	Percentage of e-learning	0%			

COURSE DESCRIPTION						
Course objectives	Current knowledge on pathogenesis, diagnosis, and treatment of nephrologic diseases will be presented through selected examples by using methods of evidence-based medicine (EBM).					
Course enrollment requirements and initial competencies required for the course	First-year courses.					
Expected learning outcomes at the course level (4 to 10 learning outcomes)	Use of EBM methods in clinical research and practice. Use of EBM methods in nephrology.					
Course content per type of class and number of class hours	Lecture (2 h): Novelties in the treatment of primary glomerulopathies Seminar 1 (2 h): Acute renal failure Seminar 2 (2 h): Chronic renal failure: arterial hypertension and progressive loss of renal function Seminar 3 (2 h): Primary glomerulopathies: rapid progressive glomerulonephritis Seminar 4 (2 h): Secondary glomerulopathies: lupus nephritis.					
Types of class:	☒ lectures ☒ seminars and workshops ☐ practicum ☐ *full online course* ☐ combined e-learning ☐ field work		☐ independent work tasks ☐ multimedia ☐ laboratory ☐ mentoring ☐ (other)			
Student obligations						
Student performance follow-up (provide ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)*:*	Class attendance		Research		Practical work	
	Experimental work		Report		(other)	
	Essay		Seminar paper		(other)	
	Tests		Oral exam		(other)	
	Written exam		Project		(other)	
Grading and evaluating student performance in	One problem-solving task.					

class and at the final exam			
Required literature (available in the library and via other media)	**Title**	**Number of copies in the library**	**Availability via other media**
	Summaries of lectures and seminars		
	Oxford Handbook of Clinical Nephrology and Hypertension (Oxford Handbooks) - by Simon Steddon, Neil Ashman, John Cunningham, and Alistair Chesser **(Turtleback)** 2006.		
	http://www.oqp.med.va.gov/cpg/ESRD/G/ESRD_cpg.doc http://www.kidney.org/professionals/KDOQI/guidelines_ckd/toc.htm http://www.kidney.org/professionals/kdoqi/cap/index.html http://www.moh.gov.sg/cmaweb/attachments/publication/GN.pdf http://www.merck.com/mmpe/sec17/ch233/ch233b.html		
Additional literature	http://cnserver0.nkf.med.ualberta.ca/cn/Schrier/Default1.htm		
Quality assurance methods to ensure achievement of learning outcomes	Following-up student performance in seminars; student survey.		
Other (in Course proposer's opinion)			

COURSE	EVIDENCE-BASED DERMATOLOGY					
Code	MEBI27	Year of the program	2			
Course director/s	Prof. Dr. Sc. Neira Puizina - Ivić	Credits (ECTS)	1.5			
Associate faculty	Dr. Sc. Tonči Stipić Dr. Sc. Deny Anđelinović	Types of class (number of hours per semester)	L	S	P	T
			2	8		10
Course status	elective	Percentage of e-learning	0%			

COURSE DESCRIPTION						
Course objectives	New knowledge in the treatment of photodermatoses and oncologic diseases and algorithms of treatment and prevention based on the EBM methods.					
Course enrollment requirements and initial competencies required for the course	First-year courses.					
Expected learning outcomes at the course level (4 to 10 learning outcomes)	Use of EBM methods in clinical practice. Knowledge of EBM methods and introducing EBM in dermatology.					
Course content per type of class and number of class hours	Biology and pathogenesis of photodermatoses and skin tumors (L 2 h). Basic postulates of photobiology (S 2 h). Function and role of gene p53 in tumor pathogenesis (S 2 h). Apoptosis in development of skin tumors (S 2 h) Protocols in the treatment of skin tumors (S 2 h).					
Types of class:	☒ lectures ☒ seminars and workshops ☐ practicum ☐ *full online course* ☐ combined e-learning ☐ field work		☐ independent work tasks ☐ multimedia ☐ laboratory ☐ mentoring ☐ (other)			
Student obligations						
Student performance follow-up (provide ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)*:*	Class attendance		Research		Practical work	
	Experimental work		Report		(other)	
	Essay		Seminar paper		(other)	
	Tests		Oral exam		(other)	
	Written exam		Project		(other)	
Grading and evaluating student performance in class and at the final exam	Written exam, one problem-solving task.					
Required literature	**Title**				**Number of**	**Availability via**

(available in the library and via other media)		**copies in the library**	**other media**
	Summaries of lectures and seminars		
	Huić M. Evidence-based medicine. In: Marušić M, editor. Planning and writing in medical research. Zagreb: Medicinska naklada;2007: u tisku.		
	Ferguson J, Dover JS. Photodermatology, London, Manson Publishing Ltd, 2006.		
	Bolognia JL, Jorizzo JL, Rapini RP. Dermatology, Edinburgh, Mosby, 2004.		
	Rigel DS et al. Cancer of the skin, Philadelphia, Elsevier Saunders, 2005.		
	Evidence-based Medicine Resource Center: *www.ebmny.org*		
Additional literature	www. ebderm.org/ MacKie R. Skin Cancer. St. Louis, Mosby, 1996. www.ebookmall.com/ebook/87530-ebook.htm		
Quality assurance methods to ensure achievement of learning outcomes	Student survey; exam pass rate analysis.		
Other (in Course proposer's opinion)			

COURSE	EVIDENCE-BASED ONCOLOGY – BREAST CANCER - DIAGNOSIS, TREATMENT, AND FOLLOW UP					
Code	MEBI28	Year of the program	2			
Course director/s	Prof. Dr. Sc. Eduard Vrdoljak	Credits (ECTS)	2			
Associate faculty	Assist. Prof. Dr. Sc. Tomislav Omrčen, MD Assist. Prof. Dr. Sc. Marijo Boban, MD Assist. Prof. Dr. Sc. Branka Petrić MišeMD	Types of class (number of hours per semester)	L	S	P	T
			4	8		12
Course status	elective	Percentage of e-learning	0%			
COURSE DESCRIPTION						
Course objectives	Current knowledge and dilemmas in diagnosis, treatment, and follow up of patients with breast cancer will be presented on selected examples by using the methods of evidence-based medicine (EBM).					
Course enrollment requirements and initial competencies required for the course	First-year courses.					
Expected learning outcomes at the course level (4 to 10 learning outcomes)	Understanding the meaning and purpose of medicine – EBM as a form of scientific thinking and drawing conclusions, purposeful and unbiased approach to a research or clinical problem. Knowledge of EBM methods and introduction of EBM into oncologic clinical practice.					
Course content per type of class and number of class hours	Critical evaluation of evidence: study validity, reliability of results, and applicability to the real problem/patient for the purpose of diagnosis, treatment, or side effects (L 4 h). The evidence-based role of radiotherapy in adjuvant treatment of breast cancer (S 2h) Evidence-based adjuvant hormonal therapy of breast cancer (seminar 2h) Her 2 receptors and evidence-based optimal treatment of breast cancer (seminar 2h) Optimal evidence-based chemotherapy in the treatment of metastatic breast cancer (seminar 2h).					
Types of class:	☒ lectures ☒ seminars and workshops ☐ practicum ☐ *full online course* ☐ combined e-learning ☐ field work		☐ independent work tasks ☐ multimedia ☐ laboratory ☐ mentoring ☐ (other)			
Student obligations						

Student performance follow-up (provide ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)*:*	Class attendance		Research		Practical work	
	Experimental work		Report		(other)	
	Essay		Seminar paper		(other)	
	Tests		Oral exam		(other)	
	Written exam		Project		(other)	
Grading and evaluating student performance in class and at the final exam	Written exam					

	Title	Number of copies in the library	Availability via other media
Required literature (available in the library and via other media)	Summaries of lectures and seminars		
	Early Breast Cancer trialist Collaborative Group. Effectsof radiotherapy and of differences in the extend of surgery for early breast cancer on local recurrence and 15-yeasr survival: an overview of randomized trial. Lancet 2005; 366:2087-106.		
	Buchholz TA, Strom EA, Perkins GH, Mcneese MD. Controversies regarding the use of radiation after mastectomy in breast cancer. The Oncologist 2002;7:539-46.		
	Coombes RC, Hall E, Gibson LJ et al.A Randomized trial of exemestane after two to three years of tamoxifen therapy in postmenopausal women with primary breast cancer. N Engl J Med, 2004;350:1081-92.		
	ATAC Trialist Group: Results of the ATAC (Arimidex, Tamoxifen, Alone or in the Combination) trial after completion of 5 years adjuvant treatment for breast cancer. Obstet Gynecol Surv, 2005 May; 60(5):307-9.		
	Goss PE, Ingle JN, Martino S et al.Randomized trial of letrozole following tamoxifen as extended adjuvant therapy in receptor-positive breast cancer. N Engl J Med, 2003;349:1793-802.		
	Colozza M, Azambuja E, Cardoso F, Sotiriou C, Larsimont D, Piccart MJ. Proliferative markers as		

	prognostic and proliferative tools in early breast cancer: where are we now? Ann Oncol, 2005;16:1723-39.		
	www.nccn.org/professionals/physician_gls/f_guidlines.asp National Cancer Institute on line: www.nci.nih.gov Evidence based medicine on line: www.ebm.bmjjournals.com		
Additional literature	www. ebderm.org/ MacKie R. Skin Cancer. St. Louis, Mosby, 1996. www.ebookmall.com/ebook/87530-ebook.htm		
Quality assurance methods to ensure achievement of learning outcomes	Student survey; exam pass rate analysis.		
Other (in Course proposer's opinion)			

COURSE	**PSYCHOTHERAPY IN THE ERA OF NEUROSCIENCE**					
Code	MEBI29	Year of the program	2			
Course director/s	Prof. Dr. Sc. Mirela Vlastelica	Credits (ECTS)	1.5			
Associate faculty		Types of class (number of hours per semester)	L	S	P	T
			2	8		10
Course status	elective	Percentage of e-learning	0%			
COURSE DESCRIPTION						
Course objectives	Current knowledge and dilemmas in psychotherapy that may be resolved by use of neuroscience and methods of evidence-based medicine (EBM).					
Course enrollment requirements and initial competencies required for the course	First-year courses.					
Expected learning outcomes at the course level (4 to 10 learning outcomes)	Use of EBM methods in clinical research and practice. Use of EBM methods in neuroscience.					
Course content per type of class and number of class hours	Lecture (2 h): Psychotherapy – from metapsychology to science Seminar 1 (2 h): From biological to psychological birth (from undifferentiated somatic matrix to psychophysiological development of an individual) Seminar 2 (2 h): The role of neuroplasticity in the psychotherapeutic process					

	Seminar 3 (2 h): Psychopharmaceuticals and neuroplasticity Seminar 4 (2 h): Neuroimaging (brain-imaging) methods in modern psychiatry

Types of class:	☒ lectures ☒ seminars and workshops ☐ practicum ☐ *full online course* ☐ combined e-learning ☐ field work	☐ independent work tasks ☐ multimedia ☐ laboratory ☐ mentoring ☐ (other)

Student obligations						
Student performance follow-up (provide ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)*):*	Class attendance		Research		Practical work	
	Experimental work		Report		(other)	
	Essay		Seminar paper		(other)	
	Tests		Oral exam		(other)	
	Written exam		Project		(other)	
Grading and evaluating student performance in class and at the final exam	One problem-solving task.					

	Title	Number of copies in the library	Availability via other media
Required literature (available in the library and via other media)	Summaries of lectures and seminars		
	Kandel ER. Psychotherapy and the single synapse: the impact of psychiatric thought on neurobiological research. J.Neuropsychiatry Clin Neurosci 2001;13:290-300.		
	Bjorklund A, Lindvall O.Self-repair in the brain. Nature 2000; 405:892-95.		
	Gabbard GO. A neurobiollogicallay informed perspective on psychotherapy. Br.J Psychiatry 2000; 177:117-22.		
	Pynoos RA, Steinberg AM, Ornitz EM .Issues in the developmental neurobiology of traumatic stress. U: Yehuda R,ur. Psychobiology of Posttraumatic Stress Disorder. New York:Academy of Sciences, 1997, 176-93.		
	Goldapple K, Seagal Z, Garson C i sur. Modulation of cortical- limbic pathways in major depression: treatment specific effects of cognitive behavior therapy. Arch Gen Psychiatry 2004; 61:34-41.		

	http://www.psychiatrictimes.com/p031159.html Centre for Evidence-based Mental Health: http://www.psychiatry.ox.ac.uk/cebmh Evidence-Based Psychiatry Center : http://ebpcenter.com Evidence-based Psychiatry: http://www.ncupsychiatry.com/research_ebp.htn http://archpsyc.ama-assn.org/cgi/collection/evidencebased_medicine		
Additional literature	Gray GE. Concise Guide to Evidence-Based Psychiatry, Oct 2003 (available since January 2016 via Amazon.com: Evidence-based psychiatry: Books)		
Quality assurance methods to ensure achievement of learning outcomes	Student survey; exam pass rate analysis.		
Other (in Course proposer's opinion)			

<table>
<tr><td>COURSE</td><td colspan="5">SLEEP APNEA</td></tr>
<tr><td>Code</td><td>MEBI30</td><td>Year of the program</td><td colspan="3">2</td></tr>
<tr><td>Course director/s</td><td>Prof. Dr. Sc. Zoran Đogaš</td><td>Credits (ECTS)</td><td colspan="3">2</td></tr>
<tr><td rowspan="2">Associate faculty</td><td rowspan="2">Prof. Dr. Sc. Goran Račić, Assoc. Prof. Dr. Sc. Goran Kardum</td><td rowspan="2">Types of class (number of hours per semester)</td><td>L</td><td>S</td><td>P</td><td>T</td></tr>
<tr><td>2</td><td>10</td><td></td><td>12</td></tr>
<tr><td>Course status</td><td>elective</td><td>Percentage of e-learning</td><td colspan="3">0%</td></tr>
<tr><td colspan="6">COURSE DESCRIPTION</td></tr>
<tr><td>Course objectives</td><td colspan="5">Analysis of factors contributing to the onset and development of sleep apnea.

- Understanding the importance of this type of sleep disorder.

- Understanding the relation between sleep apnea and essential hypertension and cardiovascular diseases.

- Basics of polysomnography, diagnostic possibilities.

- Analysis of treatment methods.

- Ways of using acquired knowledge in diagnosis and treatment approach to a patient with sleep apnea.</td></tr>
<tr><td>Course enrollment requirements and initial competencies required for the course</td><td colspan="5">First-year courses.</td></tr>
<tr><td>Expected learning outcomes at the course level (4 to 10 learning outcomes)</td><td colspan="5">Understanding the importance of sleep apnea and the relation between sleep apnea and essential hypertension and cardiovascular diseases, and the effect of sleep apnea on learning and memory; development of deliberate and unbiased research approach to a problem and transfer of scientific knowledge into clinical practice: understanding etiopathogenesis of the disease, prognosis of the disease, choosing optimal diagnostic and treatment methods.

Analysis of factors contributing to the onset and development of sleep apnea, Basics of polysomnography, introduction to diagnostic possibilities and treatment options, use of acquired knowledge in diagnosis and treatment approach to a patient with sleep apnea.</td></tr>
<tr><td>Course content per type of class and number of class hours</td><td colspan="5">Incidence and etiopathogenesis of sleep apnea. Basics of polysomnography (p 2s).

Formulating meaningful questions, structuring a question, question templates (s 2s).

Search and collection of evidence, presentation and search of databases (s 2s).

Critical assessment of evidence, validity of studies, reliability of results, applicability to patients with sleep apnea: of diagnostic methods, treatment methods, prognosis, cause of the disease or adverse effects of treatment methods (s 4s).

Use of evidence in clinical practice, analysis of decision-making, evaluation of results. Possible use of newly acquired competences in research work and diagnostic and treatment approach to a patient with sleep apnea in clinical setting (s 2s).</td></tr>
<tr><td>Types of class:</td><td colspan="2">☒ lectures</td><td colspan="3">☐ independent work tasks</td></tr>
</table>

	☒ seminars and workshops ☐ practicum ☐ *full online course* ☐ combined e-learning ☐ field work	☐ multimedia ☐ laboratory ☐ mentoring ☐ (other)

Student obligations						
Student performance follow-up (provide ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)*):*	Class attendance		Research		Practical work	
	Experimental work		Report		(other)	
	Essay		Seminar paper		(other)	
	Tests		Oral exam		(other)	
	Written exam		Project		(other)	

Grading and evaluating student performance in class and at the final exam	Written exam, after completed practicum and seminars.		
Required literature (available in the library and via other media)	**Title**	**Number of copies in the library**	**Availability via other media**
	Summaries of lectures and seminars		
	Medicina spavanja, Radni materijali, tečaj SMU, Split, 2004.		
	Teofilo L. Lee-Chiong. Sleep: A Comprehensive Handbook, Wiley & Sons, New Jersey, USA, 2006. (pogl. 10, 11, 19)		
Additional literature	Selected articles from scientific journals. Newly found references by medical database search.		
Quality assurance methods to ensure achievement of learning outcomes	Teaching quality evaluation by students and faculty, Analysis of exam pass rates, grading performance in seminars, reports of the Committee for Control of Teaching Delivery Extramural evaluation (by quality control teams from the National Quality Assurance Agency, inclusion in TEEP).		
Other (in Course proposer's opinion)			

COURSE	**GASTROINTESTINAL PRECANCEROUS LESIONS**		
Code	MEBI31	Year of the program	2

Course director/s	Prof. Dr. Sc. Snježana Tomić	Credits (ECTS)	1.5			
Associate faculty	Prof. Dr. Sc. Nikica Družijanić	Types of class (number of hours per semester)	L	S	P	T
			2	8		10
Course status	elective	Percentage of e-learning	0%			

COURSE DESCRIPTION

Course objectives	Current knowledge and dilemmas in pathogenesis, diagnosis, precancerous potential, follow-up, and treatment of precancerous lesions in the gastrointestinal system will be presented on selected examples by using methods of evidence-based medicine (EBM).
Course enrollment requirements and initial competencies required for the course	First-year courses.
Expected learning outcomes at the course level (4 to 10 learning outcomes)	**General**: Use of EBM methods in clinical research and practice. **Specific**: Use of EBM methods in the pathology of precancerous lesions in the gastrointestinal system.
Course content per type of class and number of class hours	Lecture (2 h): Precancerous lesions in the gastrointestinal system (pathogenesis, diagnosis, estimating the probability of malignant transformation, follow up, and treatment) Seminar 1 (2 h): The role of screening program in detection of precancerous lesions in the gastrointestinal system Seminar 2 (2 h): Dysplasia as an indicator of malignant potential of precancerous lesions in the gastrointestinal system. Assessment of the value and reproducibility of the existing classifications. Seminar 3 (2 h): Importance of biomarkers in the assessment of risk associated with precancerous lesions in the gastrointestinal system. Seminar 4 (2 h): Follow up and treatment of precancerous lesions in the gastrointestinal system.

Types of class:	☒ lectures ☒ seminars and workshops ☐ practicum ☐ *full online course* ☐ combined e-learning ☐ field work	☐ independent work tasks ☐ multimedia ☐ laboratory ☐ mentoring ☐ (other)
Student obligations		

Student performance follow-up (provide ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)*:*						
	Class attendance		Research		Practical work	
	Experimental work		Report		(other)	
	Essay		Seminar paper		(other)	
	Tests		Oral exam		(other)	
	Written exam		Project		(other)	

Grading and evaluating student performance in class and at the	Solving one EBM problem, written exam.

final exam			
Required literature (available in the library and via other media)	**Title**	**Number of copies in the library**	**Availability via other media**
	Summaries of lectures and seminars		
	Malfertheiner P, Fry LC. Monkemuller K. Can gastric cancer be prevented by Helicobacter pylori eradication? Best Pract Res Clin Gastroenterol. 2006;20:709-19.		
	Sharma P, McQuaid K, Dent J et al. A critical review of the diagnosis and manegement of Barrett's esophagus: The AGA Chicago Workshop. Gastroenterology 2004; 127: 310-30.		
	Genta RM, Rugge M. Gastric precancerous lesions: heading for an international consensus. Gut 2000; 45: 15-8.		
	Notthingam centre for evidence based pathology: www.notthingham.ac.uk/pathology/evcent.html		
Additional literature	Hamilton SR, Aaltonen LA. Pathology and genetics: Tumors of the Digestive System, WHO Classification of tumours. Iarc press, Lyon, 2002.		
Quality assurance methods to ensure achievement of learning outcomes	Following-up student performance in seminars; student survey.		
Other (in Course proposer's opinion)			

COURSE	**NEUROLOGY - EVIDENCE-BASED BASAL GANGLIA DISEASES**					
Code	MEBI32	Year of the program	2			
Course director/s	Prof. Dr. Sc. Marina Titlić	Credits (ECTS)	2			
Associate faculty	Prof. Dr. Sc. Ivo Lušić, Prof. Dr. Sc. Mirela Vlastelica, Marija Meštrović, dr. med.	Types of class (number of hours per semester)	L	S	P	T
			2	10		12
Course status	elective	Percentage of e-learning	0%			
COURSE DESCRIPTION						
Course objectives	Current knowledge and dilemmas in pathogenesis, diagnosis, and treatment of autoimmune diseases will be presented through selected examples by using methods of evidence-based medicine (EBM).					
Course enrollment	First-year courses.					

requirements and initial competencies required for the course						
Expected learning outcomes at the course level (4 to 10 learning outcomes)	Use of EBM methods in clinical research and practice. Use of EBM methods in neurology.					
Course content per type of class and number of class hours	Lecture (2 h): Basal ganglia disorders (definition, epidemiology, classification, patophysiology, diagnosis) Seminar 1 (2 h): Parkinson's disease Seminar 2 (2 h): Wilson's disease Seminar 3 (2 h): Psychiatric aspects of basal ganglia disorders Seminar 4 (2 h) Basal ganglia disorders in children Seminar 5 (2 h): Evidence-based treatment of Parkinson's disuse and other basal ganglia diseases					
Types of class:	☒ lectures ☒ seminars and workshops ☐ practicum ☐ *full online course* ☐ combined e-learning ☐ field work		☐ independent work tasks ☐ multimedia ☐ laboratory ☐ mentoring ☐ (other)			
Student obligations						
Student performance follow-up (provide ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)*:*	Class attendance		Research		Practical work	
	Experimental work		Report		(other)	
	Essay		Seminar paper		(other)	
	Tests		Oral exam		(other)	
	Written exam		Project		(other)	
Grading and evaluating student performance in class and at the final exam	Solving one EBM problem.					

Required literature (available in the library and via other media)	**Title**	**Number of copies in the library**	**Availability via other media**
	Summaries of lectures and seminars		
	Miyasaki JM, Martin W, Suchowersky O, Weiner WJ, Lang AE. Practice parameter: Initiation of treatment for Parkinson's disease: An evidence-based review. Neurology 2002;58:11-17.		
	Tinaz S, Schendan HE, Schon K, Stern CE. Evidence for the importanceof basal ganglia output nuclei in semantic event sequencing: an		

	fMRI study. Brain Res 2006;1067:239-49.		
	Keus SH, Bloem BR, Hendriks EJ, Bredero-CohenAB, Munneke M. Evidence-based analysis of physical therapy in Parkinson's disease with recommendations for practice and research.Mov Disord 2006; [Epub ahead of print] Pahwa R, Factor SA, Lyons KE, Ondo WG, Gronseth G, Bronte-Stewart H, Hallett M, Miyasaki J, Stevens J, Weiner WJ; Quality Stendards Subcommittee of the American Academy of Neurology. Neurology 2006;66:983-95.		
	Roberts EA, Schilsky ML. A practice guideline on Wilson disease. Hepatology 2003;37:1475-92.		
Additional literature	http://neurology.jwatch.org/articles/Parkinson http://www.clevlandclinicmeded.com http://www.diseasemanagement/gastro/Wilson/Wilsons.htm http://www.emedicine.com/neuro http://www.medscape.com/viewarticle http://www.ahrq.gov/clinic/tp/parktp.htm http://www.biomedical.com		
Quality assurance methods to ensure achievement of learning outcomes	Following-up student performance in seminars; student survey.		
Other (in Course proposer's opinion)			

COURSE	RESTLESS LEGS SYNDROME – RLS					
Code	MEBI33	Year of the program	2			
Course director/s	Prof. Dr. Sc. Marina Titlić	Credits (ECTS)	2			
Associate faculty	Prof. Dr. Sc. Zoran Đogaš	Types of class (number of hours per semester)	L	S	P	T
			2	10		12
Course status	elective	Percentage of e-learning	0%			

COURSE DESCRIPTION

Course objectives	Current knowledge and dilemmas in pathogenesis, diagnosis, and treatment of restless legs syndrome will be presented on selected examples by using methods of evidence-based medicine (EBM)
Course enrollment requirements and initial competencies required for the course	First-year courses.
Expected learning outcomes at the course level (4 to 10 learning outcomes)	Use of EBM methods in clinical research and practice. Use of EBM methods in neurology.
Course content per type of class and number of class hours	Lecture (2 h): Restless legs syndrome (definition, epidemiology, etiology, diagnosis, and differential diagnosis) Seminar 1 (2 h): Sleep disorders in restless legs syndrome Seminar 2 (2 h): Genetics in restless legs syndrome Seminar 3 (2 h): Pathophysiology of restless legs syndrome Seminar 4 (2 h): Secondary forms of restless legs syndrome Seminar 5 (2 h): Treatment approach to restless legs syndrome
Types of class:	☒ lectures ☒ seminars and workshops ☐ practicum ☐ *full online course* ☐ combined e-learning ☐ field work ☐ independent work tasks ☐ multimedia ☐ laboratory ☐ mentoring ☐ (other)
Student obligations	

Student performance follow-up (provide ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)*:*						
	Class attendance		Research		Practical work	
	Experimental work		Report		(other)	
	Essay		Seminar paper		(other)	
	Tests		Oral exam		(other)	
	Written exam		Project		(other)	

Grading and evaluating student performance in class and at the final exam	Solving one EBM problem.

	Title	Number of copies in the library	Availability via other media
Required literature (available in the library and via other media)	Summaries of lectures and seminars		
	Trenkwalder C, Paulus W, Walters AS. The restless legs syndrome. Lancet Neurol 2005;4:465-75.		
	Turek FW, Gillette MU. Melatonin, sleep, and circadian rhythms: rationale for development of specific melatonin agonists. Sleep Medicine 2004;5:523-32.		
	Paulus W, Schomburg ED. Dopamine and the spinal cord in restless legs syndrome: Does spinal cord physiology reveal a basis for augmentation?. Sleep Med Rev 2006;10:185-96.		
	Winkelmann J, Ferini-Strambi L. Genetics of restless legs syndrome. Sleep Med Rev 2006;10:179-83.		
	Allen R. Dopamine and iron in the pathophysiology. Sleep Med 2004;5:385-91.		
	Littner MR, Kushida C, McDowell A et al. Practice parameters for the dopaminergic treatment of Restless Legs syndrome and Periodic Limb Movement Disorder. Sleep 2004;27:557-9.		
Additional literature	Sperfeld AD, Unrath A, Kassubek J. Restless legs syndrome in hereditary spastic paraparesis. Eur neurol 2007;57:31-5. Trenkwalder C. The weight of evidence for ropinirole in restless legs syndrome. Eur J Neurol 2006;13 (Suppl 3):21-30. Garcia-Borreguero D, Egatz R, Winkelmann J, Berger K. Epidemiology of restless legs syndrome. The current status. Sleep Med rev 2006;10:153-67. Cortes S, Konofal E, Lecendreux M et al. Restless legs syndrome and attention-deficit/hyperactivity disorder: a review of the literature. Sleep 2005;28:1007-13. Fulda S, Wetter TC. Emerging drugs for restless legs syndrome. Expert Opin Emerg Drugers 2005;10:537-52. The Cochrane Library. Available at:http://www.cochrane.org. Bandolier. Available at: http://www.ebandolier.com. National Guideline Clearinghouse. Available at: http://www.guideline.gov. PubMed. Available at: http://www.pubmed.gov. SUMSearch. Available at: http://sumsearch.uthscsa.edu. Clinical Evidence. Available at: http://www.clinicalevidence.com.		
Quality assurance methods to ensure	Following-up student performance in seminars; student survey.		

achievement of learning outcomes	
Other (in Course proposer's opinion)	

COURSE	ETHIOPATHOGENESIS OF OXIDATIVE STRESS AND MECHANISMS OF PROTECTION					
Code	MEBI34	Year of the program	2			
Course director/s	Prof. Dr. Sc. Mladen Boban	Credits (ECTS)	2			
Associate faculty	Prof. Dr. Sc. Darko Modun Assist. Prof. Ivana Mudnić, MD	Types of class (number of hours per semester)	L	S	P	T
			2	6	2	10
Course status	elective	Percentage of e-learning	0%			

COURSE DESCRIPTION	
Course objectives	Mechanisms of oxidative damage in human body, endogenous and environmental factors Endogenous defense mechanisms against oxidative damage Food as an important modulator of oxidative balance in the body Oxidative damage in the patophysiology of most frequent conditions Antioxidants - pharmacotherapy Methods of assessment of oxidative damage and antioxidative defense
Course enrollment requirements and initial competencies required for the course	First-year courses.
Expected learning outcomes at the course level (4 to 10 learning outcomes)	Knowledge of the basic mechanisms of oxidative stress and antioxidative defense. Critical assessment of factors contributing to the development of oxidative stress in humans, the role of oxidative stress in different diseases, and possible ways to its reduction or prevention. Knowledge of basic antioxidants present in the body or introduced exogenously. Possibilities to determine oxidative stress and antioxidative defense in the patient.
Course content per type of class and number of class hours	Lecture (2 h): General review of the topics listed in the outlined content of the course Seminars (6 h): 1. Mechanisms of oxidative damage and antioxidative defense (preventive, enzymatic, and agents that capture free radicals) in the human body 2. The role of oxidative stress in ischemic-reperfusion damage 3. Some important examples of medications with antioxidative activity 4. The most important antioxidants in the food Practicum (2 h): Practicum work to determine antioxidative capacity (by complementary, illustrative spectrophotometric methods FRAP and TEAC) of the plasma of students, before and after oxidative stress (fatty meal) in the Laboratory of the Department of Pharmacology, 5th floor, Split Medical School.

Types of class:		
	☒ lectures ☒ seminars and workshops ☒ practicum ☐ *full online course* ☐ combined e-learning	☐ independent work tasks ☐ multimedia ☐ laboratory ☐ mentoring ☐ (other)

<table>
<tr><td></td><td colspan="6">☐ field work</td><td colspan="2"></td></tr>
<tr><td>Student obligations</td><td colspan="8"></td></tr>
<tr><td rowspan="5">Student performance follow-up (provide ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course):</td><td>Class attendance</td><td></td><td>Research</td><td></td><td>Practical work</td><td></td></tr>
<tr><td>Experimental work</td><td></td><td>Report</td><td></td><td>(other)</td><td></td></tr>
<tr><td>Essay</td><td></td><td>Seminar paper</td><td></td><td>(other)</td><td></td></tr>
<tr><td>Tests</td><td></td><td>Oral exam</td><td></td><td>(other)</td><td></td></tr>
<tr><td>Written exam</td><td></td><td>Project</td><td></td><td>(other)</td><td></td></tr>
<tr><td>Grading and evaluating student performance in class and at the final exam</td><td colspan="8">Written exam</td></tr>
<tr><td rowspan="9">Required literature (available in the library and via other media)</td><td colspan="5">Title</td><td>Number of copies in the library</td><td>Availability via other media</td></tr>
<tr><td colspan="5">Summaries of lectures and seminars</td><td></td><td></td></tr>
<tr><td colspan="5">Script in Croatian on all thematic units of the course (in preparation).</td><td></td><td></td></tr>
<tr><td colspan="5"></td><td></td><td></td></tr>
<tr><td colspan="5"></td><td></td><td></td></tr>
<tr><td colspan="5"></td><td></td><td></td></tr>
<tr><td colspan="5"></td><td></td><td></td></tr>
<tr><td colspan="5"></td><td></td><td></td></tr>
<tr><td colspan="5"></td><td></td><td></td></tr>
<tr><td>Additional literature</td><td colspan="8">Selected review articles, such as:

McCord JM. The evolution of free radicals and oxidative stress. Am J Med. 2000;108:652-659.

Benzie IF. Evolution of antioxidant defense mechanisms. Eur J Nutr. 2000;39:53-61.

Stocker R, Keaney JF, Jr. Role of oxidative modifications in atherosclerosis. Physiol Rev. 2004;84:1381-1478.</td></tr>
<tr><td>Quality assurance methods to ensure achievement of learning outcomes</td><td colspan="8">Following-up student performance in seminars; student survey.</td></tr>
<tr><td>Other (in Course proposer’s opinion)</td><td colspan="8"></td></tr>
</table>

COURSE	GENES AND SIGNALING					
Code	MEBI35	Year of the program	2			
Course director/s	Prof. Dr. Sc. Janoš Terzić Prof. Dr. Sc. Ivan Đikić	Credits (ECTS)	1			
Associate faculty	Prof. Dr. Sc. Ivana Marinović Terzić	Types of class (number of hours per semester)	L	S	P	T
			2	8	0	10
Course status	elective	Percentage of e-learning	0%			

COURSE DESCRIPTION

Course objectives	
Course enrollment requirements and initial competencies required for the course	First-year courses.
Expected learning outcomes at the course level (4 to 10 learning outcomes)	Students will acquire the skills needed for critical assessment of the topics discussed during the course.
Course content per type of class and number of class hours	1. Cloning and development of stem cell science from its beginnings until today (L 2h) 2. Journal club: the role of inflammatory processes in the development of colon cancer (S 2h) 3. Journal club: Development and mechanism of action of new antitumor drugs (S 4h) 4. Journal club: The role of a small peptide, ubiquitin, in oncogenetic processes (S 2h)
Types of class:	☒ lectures ☒ seminars and workshops ☒ practicum ☐ *full online course* ☐ combined e-learning ☐ field work ☐ independent work tasks ☐ multimedia ☐ laboratory ☐ mentoring ☐ (other)
Student obligations	

Student performance follow-up (provide ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)*:*						
	Class attendance		Research		Practical work	
	Experimental work		Report		(other)	
	Essay		Seminar paper		(other)	
	Tests		Oral exam		(other)	
	Written exam		Project		(other)	
Grading and evaluating student performance in class and at the final exam	Written exam					

	Title	Number of copies in the library	Availability via other media
Required literature (available in the library and via other media)	Hoeller D, Hecker CM, Đikic I. Ubiquitin and ubiquitin-like proteins in cancer pathogenesis. Nat Rev Cancer. 2006;6:776-88.		
	Solter D. Mammalian cloning: advances and limitations. Nat Rev Genet. 2000;1:199-207.		
	Li Q, Withoff S, Verma I. Inflammation-associated cancer: NF-kappaB is the lynchpin. Trends Immunol. 2005;26:318-25.		
Additional literature			
Quality assurance methods to ensure achievement of learning outcomes	Anonymous student survey. Teaching supervision by the Program Director.		
Other (in Course proposer's opinion)			

COURSE	**PHYSIOLOGY OF DIVING**					
Code	MEBI36	Year of the program	2			
Course director/s	Prof. Dr. Sc. Željko Dujić	Credits (ECTS)	2			
Associate faculty	Prof. Dr. Sc. Darija Baković Assoc. Prof. Otto Barak	Types of class (number of hours per semester)	L	S	P	T
			3	8	0	11
Course status	elective	Percentage of e-learning	0%			
COURSE DESCRIPTION						
Course objectives	Introduction to the problems in physiology of diving					
Course enrollment requirements and initial competencies required for the course	First-year courses.					
Expected learning outcomes at the course level (4 to 10 learning outcomes)	Use of EBM methods in preclinical research. Use of EBM methods in physiology of diving.					
Course content per type of class and number of class	P1 – physiology of diving. S1 – Physical exercise before, during, and after diving and occurrence of inert gas					

<table>
<tr><td>hours</td><td colspan="6">bubbles

S2 – Antioxidants, endothelial dysfunction and diving

S3 – Contribution of the spleen in the diving reflex

S4 – Desaturation during apnea</td></tr>
<tr><td>Types of class:</td><td colspan="3">☒ lectures
☒ seminars and workshops
☐ practicum
☐ full online course
☐ combined e-learning
☐ field work</td><td colspan="3">☐ independent work tasks
☐ multimedia
☐ laboratory
☐ mentoring
☐ (other)</td></tr>
<tr><td>Student obligations</td><td colspan="6"></td></tr>
<tr><td rowspan="5">Student performance follow-up (provide ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course):</td><td>Class attendance</td><td></td><td>Research</td><td></td><td>Practical work</td><td></td></tr>
<tr><td>Experimental work</td><td></td><td>Report</td><td></td><td>(other)</td><td></td></tr>
<tr><td>Essay</td><td></td><td>Seminar paper</td><td></td><td>(other)</td><td></td></tr>
<tr><td>Tests</td><td></td><td>Oral exam</td><td></td><td>(other)</td><td></td></tr>
<tr><td>Written exam</td><td></td><td>Project</td><td></td><td>(other)</td><td></td></tr>
<tr><td>Grading and evaluating student performance in class and at the final exam</td><td colspan="6">Solving one EBM problem., Written exam.</td></tr>
<tr><td rowspan="9">Required literature (available in the library and via other media)</td><td colspan="3">Title</td><td>Number of copies in the library</td><td>Availability via other media</td></tr>
<tr><td colspan="3">Bennett & Elliott’s (2003). Physiology and Medicine of Diving, 5th edn, ed. Brubakk AO & Neuman TS. Saunders, London.</td><td></td><td></td></tr>
<tr><td colspan="3">Selected chapters from new literature on physiology</td><td></td><td></td></tr>
<tr><td colspan="3"></td><td></td><td></td></tr>
<tr><td colspan="3"></td><td></td><td></td></tr>
<tr><td colspan="3"></td><td></td><td></td></tr>
<tr><td colspan="3"></td><td></td><td></td></tr>
<tr><td colspan="3"></td><td></td><td></td></tr>
<tr><td colspan="3"></td><td></td><td></td></tr>
<tr><td>Additional literature</td><td colspan="6"></td></tr>
<tr><td>Quality assurance methods to ensure achievement of learning outcomes</td><td colspan="6">Teaching quality evaluation by students and faculty, Analysis of exam pass rates, Reports of the Council for Control of Teaching Delivery, extramural evaluation</td></tr>
<tr><td>Other (in Course proposer’s opinion)</td><td colspan="6"></td></tr>
</table>

COURSE	BLOOD FLOW REGULATION					
Code	MEBI37	Year of the program	2			
Course director/s	Prof. Dr. Sc. Zoran Valić	Credits (ECTS)	2			
Associate faculty	Prof. Dr. Sc. Željko Dujić, Prof. Dr. Sc. Darija Baković	Types of class (number of hours per semester)	L	S	P	T
			3	8	0	11
Course status	elective	Percentage of e-learning	0%			

COURSE DESCRIPTION

Course objectives	Introduction to the problems in regulation of blood flow
Course enrollment requirements and initial competencies required for the course	First-year courses.
Expected learning outcomes at the course level (4 to 10 learning outcomes)	Use of EBM methods in preclinical research. Use of EBM methods in the problem of regulation of blood flow through muscles.
Course content per type of class and number of class hours	L1 – Central and peripheral blood flow regulatory mechanisms, blood flow through skeletal muscles S1 – Muscle pump S2 – Flow-mediated vasodilatation S3 – Myogenic theory and release of acetylcholine S4 – The role of autonomic nervous system in the blood flow through muscles
Types of class:	☒ lectures ☒ seminars and workshops ☐ practicum ☐ *full online course* ☐ combined e-learning ☐ field work ☐ independent work tasks ☐ multimedia ☐ laboratory ☐ mentoring ☐ (other)
Student obligations	

Student performance follow-up (provide ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)*:*						
	Class attendance		Research		Practical work	
	Experimental work		Report		(other)	
	Essay		Seminar paper		(other)	
	Tests		Oral exam		(other)	
	Written exam		Project		(other)	

Grading and evaluating student performance in class and at the final exam	Solving one EBM problem. Written exam.

Required literature (available in the	**Title**	**Number of copies in**	**Availability via other media**

library and via other media)		**the library**	
	Rowell, L.B. and Shepard J.T. Exercise: regulation and integration of multiple systems, APS & Oxford University Press, 1996.		
	Selected chapters from new literature on physiology		
Additional literature			
Quality assurance methods to ensure achievement of learning outcomes	Teaching quality evaluation by students and faculty, Analysis of exam pass rates, Reports of the Council for Control of Teaching Delivery, extramural evaluation.		
Other (in Course proposer's opinion)			

COURSE	**ENDOCYTIC PATHWAY IN DISEASE**					
Code	MEBI40	Year of the program	2			
Course director/s	Prof. Dr. Sc. Pero Lučin	Credits (ECTS)	2			
Associate faculty		Types of class (number of hours per semester)	L	S	P	T
			2	10	0	12
Course status	elective	Percentage of e-learning	0%			
COURSE DESCRIPTION						
Course objectives	Endocytic pathway and intracellular protein trafficking is one of the most competitive areas in cell biology research. The goal of this course is to introduce students to the most recent research in the field of endocytosis and explain the mechanisms of disease development caused by disrupted trafficking through endosomes.					
Course enrollment requirements and initial competencies required for the course	First-year courses.					
Expected learning outcomes at the course level (4 to 10 learning outcomes)	Use of research evidence in understanding the development of disease and treatment approaches. By searching the literature and discussing and presenting cases in seminars, the students will develop their instrumental competencies (information management, oral communication), interpersonal competencies (critical approach, team work, ability to work in international settings), and system competencies (ability to apply the knowledge in practice, research skills, ability to adjust to new situations, ability to work independently) Understanding the endocytic pathway, trends in molecular medicine, and					

	development of evidence-based medicine.
Course content per type of class and number of class hours	Lecture (2 h): Endocytic and secretory pathway Seminar (2 h): Glucose transporters and diabetes mellitus Seminar (1 h): Aquaporines and diabetes insipidus Seminar (1 h): Sodium channels and hypertension Seminar (1 h): Endocytic pathway in tumors Seminar (2 h): Exogenous pathway for antigen presentation Seminar (2 h): Entry of virus into cells via endocytic pathway and production of infective virions. Seminar (1 h): Entry of toxins into cells via endocytic uptake
Types of class:	☒ lectures ☒ seminars and workshops ☐ practicum ☐ *full online course* ☐ combined e-learning ☐ field work ☐ independent work tasks ☐ multimedia ☐ laboratory ☐ mentoring ☐ (other)
Student obligations	

Student performance follow-up (provide ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)*:*						
	Class attendance		Research		Practical work	
	Experimental work		Report		(other)	
	Essay		Seminar paper		(other)	
	Tests		Oral exam		(other)	
	Written exam		Project		(other)	

Grading and evaluating student performance in class and at the final exam	Presentations in seminars and a written exam.

Required literature (available in the library and via other media)	**Title**	**Number of copies in the library**	**Availability via other media**
	Mousavi SA, Malerod L, Berg T, Kjeken R. (2004). Clathrin-dependent endocytosis. Biochem J.; 377:1-16.		
	Rajendran L, Simons K. (2005). Lipid rafts and membrane dynamics. J Cell Sci.; 118:1099-102.		
	Dugani CB, Klip A. (2005). Glucose transporter 4: cycling, compartments and controversies. EMBO Rep. 6:1137-42.		

	Valenti G, Procino G, Tamma G, Carmosino M, Svelto M. (2005). Minireview: aquaporin 2 trafficking. Endocrinology. 146:5063-70.		
	Snyder PM. (2005). Minireview: regulation of epithelial Na+ channel trafficking. Endocrinology. 146:5079-85. Snyder PM. (2002). The epithelial Na+ channel: cell surface insertion and retrieval in Na+ homeostasis and hypertension. Endocr Rev.; 23:258-75.		
	Bache KG, Slagsvold T, Stenmark H. (2004). Defective downregulation of receptor tyrosine kinases in cancer. EMBO J.; 23:2707-12. Brode S, Macary PA. (2004). Cross-presentation: dendritic cells and macrophages bite off more than they can chew! Immunology. 112:345-51.		
	Sieczkarski SB, Whittaker GR. (2002) Dissecting virus entry via endocytosis. J Gen Virol.; 83:1535-45. Chazal N, Gerlier D. (2003). Virus entry, assembly, budding, and membrane rafts. Microbiol Mol Biol Rev.; 67:226-37		
Additional literature			
Quality assurance methods to ensure achievement of learning outcomes	Following-up student performance in seminars; student survey.		
Other (in Course proposer's opinion)			

COURSE	**MOLECULAR BASIS OF BONE DISORDERS**					
Code	MEBI41	Year of the program	2			
Course director/s	Prof. Dr. Sc. Dragan Primorac	Credits (ECTS)	1.5			
Associate faculty	Prof. Dr. Sc. Slobodan Vukičević	Types of class (number of hours per semester)	L	S	P	T
			2	8	0	10
Course status	elective	Percentage of e-learning	0%			
COURSE DESCRIPTION						
Course objectives	By applying evidence-based medicine (EBM) on selected examples, we will demonstrate the association between the pathology of messenger RNA (messenger RNA processing, transport and expression) and clinical manifestation of bone disease. In addition to molecular pathophysiology, early diagnosis and classical forms of treatment as well as models of cell and gene therapy will be presented.					
Course enrollment	First-year courses.					

<table>
<tr><td>requirements and initial competencies required for the course</td><td colspan="6"></td></tr>
<tr><td>Expected learning outcomes at the course level (4 to 10 learning outcomes)</td><td colspan="6">Systemic and complete information processing, including understanding of etiopathogenetic processes associated with mRNA splicing; special emphasis on the models of intron retention and exon skipping and linking the etiopathogenesis to clinical presentation.

Logic and evidence-based selection of research, diagnostic, and treatment methods.</td></tr>
<tr><td>Course content per type of class and number of class hours</td><td colspan="6">Genes responsible for the skeletal development, mechanisms of heredity, and most frequent bone diseases (L2h).

Osteogenesis Imperfecta type I (OI) (S2h).

More severe and lethal OI forms (S2h)

Fibrodysplasia Ossificans Progressiva (FOP) (S2h)

Molecular diagnosis, classical forms of treatment, and gene and cell therapy (S2h)</td></tr>
<tr><td>Types of class:</td><td colspan="3">☒ lectures
☒ seminars and workshops
☐ practicum
☐ full online course
☐ combined e-learning
☐ field work</td><td colspan="3">☐ independent work tasks
☐ multimedia
☐ laboratory
☐ mentoring
☐ (other)</td></tr>
<tr><td>Student obligations</td><td colspan="6"></td></tr>
<tr><td rowspan="5">Student performance follow-up (provide ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)):</td><td>Class attendance</td><td></td><td>Research</td><td></td><td>Practical work</td><td></td></tr>
<tr><td>Experimental work</td><td></td><td>Report</td><td></td><td>(other)</td><td></td></tr>
<tr><td>Essay</td><td></td><td>Seminar paper</td><td></td><td>(other)</td><td></td></tr>
<tr><td>Tests</td><td></td><td>Oral exam</td><td></td><td>(other)</td><td></td></tr>
<tr><td>Written exam</td><td></td><td>Project</td><td></td><td>(other)</td><td></td></tr>
<tr><td>Grading and evaluating student performance in class and at the final exam</td><td colspan="6">Written exam (multi-choice questions).</td></tr>
<tr><td rowspan="2">Required literature (available in the library and via other media)</td><td colspan="3">Title</td><td>Number of copies in the library</td><td>Availability via other media</td></tr>
<tr><td colspan="3">Primorac D. Molekularni mehanizmi nastanka osteogenesis imperfecte (OI) u: Metode u molekularnoj medicini. Šerman D, Stavljenić-Rukavina A, Sertić J, F Bulić Jakuš). (ur.).Zagreb : Medicinska naklada, School of Medicine Zagreb, 2001:188-</td><td></td><td></td></tr>
</table>

	Vrkić N. Krpan D, Primorac D. *Koštane bolesti* u: Medicinsko biokemijska dijagnostika u kliničkoj praksi. Topić E, Primorac D, Janković S (ur.). Zagreb : Medicinska naklada, 2004.		
	Plotkin H, Primorac D., Rowe D.W. *Osteogenesis Imperfecta. In*: Pediatric Bone: Biology & Diseases. (Editor Francis Glorieux). New York: Academic Press 2003.		
	Shapiro J., Primorac D., Rowe D.W. *Mutations in type I Osteogenesis Imperfecta*. In Principles of Bone Biology. (Eds. J. Bilezikian, L.Raisz, G. Rodan). New York:Academic Press 1996:889-902.		
	Kaplan, F.S. et al. *Fibrodysplasia Ossificans Progressiva* in Connective Tissue and Its Heritable Disorders (eds Royce, P. & Steinmann, B.) 827–840 (Wiley-Liss, New York, 2002).		
Additional literature	Stover M.L., Primorac D., Liu S.C., McKinstry M.B., and Rowe D.W. Defective Splicing of mRNA from One COL1A Allele of Type I Collagen in Nondeforming (Type I) Osteogenesis Imperfecta. J. Clin. Invest. 1993;92:1994-2002. Dragan Primorac, David W. Rowe, Monica Mottes, Ingeborg Barišić, Darko Antičević, Stefania Mirandola, Macarena Gomez Lira, Ivo Kalajzić, Vesna Kušec, Francis H. Glorieux .Osteogenesis Imperfecta at the Beginning of Bone and Joint Decade. Croatian Medical Journal 2001; 42: 392-414. http://health.nih.gov/result.asp?disease_id=486 http://www.tripdatabase.com/SearchResults.html?dym=1&criteria=osteogenesis+imperfecta http://www.tripdatabase.com/SearchResults.html?s=1&criteria=Fibrodysplasia+Ossificans+Progressiva		
Quality assurance methods to ensure achievement of learning outcomes	Following-up student performance in seminars; student survey.		
Other (in Course proposer's opinion)			
COURSE	**MODERN APPROACH TO DIAGNOSIS AND TREATMENT OF INTERSTITIAL LUNG DISEASES**		
Code	MEBI42	Year of the program	2
Course director/s	Prof. Dr. Sc. Kornelija	Credits (ECTS)	2

	Miše					
Associate faculty	Prof. Dr. Sc. Meri Glavina-Durdov	Types of class (number of hours per semester)	L	S	P	T
			1	10	0	10
Course status	elective	Percentage of e-learning	0%			

COURSE DESCRIPTION

Course objectives	Recent knowledge about the development of diffuse interstitial pulmonary diseases (DIPD), diagnosis, classification, and treatment, using the most recent methods of evidence-based medicine (EBM).
Course enrollment requirements and initial competencies required for the course	First-year courses.
Expected learning outcomes at the course level (4 to 10 learning outcomes)	Use of EBM methods in clinical research and practice. Use of EBM methods in diagnosis of interstitial pulmonary diseases.
Course content per type of class and number of class hours	Lecture (1 h): Current approach to interstitial pulmonary diseases (pathogenesis, diagnosis, differential diagnosis, and classification, treatment, and treatment complications). Seminar 1 (2 h): Epidemiology, etiology, and classification of DIPD. Seminar 2 (2 h): Pathogenesis of DIPD, the role of various mediators in the lungs, especially cytokines and cell elements in BAL and other factors. Microaspiration of gastric fluid - GER and lung reaction. Seminar 3 (2 h): Symptoms – clinical and radiologic diagnosis (standard lung x-rays and HRCT). Seminar 4 (2 h): Bronchoscopic examination: analysis and value of BAL, transbronchial lung biopsy. Lung function tests. Seminar 5 (2 h): Treatment and new medications for DIPD and secondary pulmonary hypertension, complications. Oxygen therapy.
Types of class:	☒ lectures ☒ seminars and workshops ☐ practicum ☐ *full online course* ☐ combined e-learning ☐ field work ☐ independent work tasks ☐ multimedia ☐ laboratory ☐ mentoring ☐ (other)
Student obligations	

Student performance follow-up (provide ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)*:*						
	Class attendance		Research		Practical work	
	Experimental work		Report		(other)	
	Essay		Seminar paper		(other)	
	Tests		Oral exam		(other)	
	Written exam		Project		(other)	

Grading and evaluating student performance in class and at the final exam	Solving 1-2 problems		
Required literature (available in the library and via other media)	**Title**	**Number of copies in the library**	**Availability via other media**
	Summaries of lectures and seminars		
	Peroš-Golubičić T i sur. Sarkoidoza/Bolesti plućnog intersticija. Zagreb: Medicinska naklada; 2005.		
	Zompatori M, Bna CV, Spaggiari E, et al. Diagnosis imaging of diffuse infiltrative disease of the lung. Respiration 2004; 71:4-19.		
	Newman LS, Rose CS, et al. Sarcoidosis. N Engl J Med 1997;337: 1-139.		
	Noppen M, Vanmaele L, et al. Difficult diagnosis in granulomatous lung disease. Eur J Intern Med 1994; 5: 283-286. Baughman RP, Drent M, Kavaru M, et al. Infliximab therapy in patients with chronic sarcoidosis and pulmonary involvement. Am J Respir Crit Care Med. 2006; 174: 795-802.		
	Pavord D, Birring SS, Berry RH, et al. Multiple inflamatory hits and the pathogenesis of severe airway disease. Eur Respir J 2006; 27: 884-888.		
Additional literature	Crausman RS, Jennings CA, et al. Pulmonary function and exercise pathophysiology. Am J Respir Care Med 1997;153:426-435.		
Quality assurance methods to ensure achievement of learning outcomes	Conversations with students and student survey.		
Other (in Course proposer's opinion)			

COURSE	**EVIDENCE-BASED INFECTIOUS DISEASES - INFLUENZA**		
Code	MEBI43	Year of the program	2

Course director/s	Prof. Dr. Sc. Nikola Bradarić	Credits (ECTS)	2			
Associate faculty	Prof. Dr. Sc. Ivo Ivić Prof. Dr. Sc. Marija Tonkić	Types of class (number of hours per semester)	L	S	P	T
			2	10	0	12
Course status	elective	Percentage of e-learning	0%			

COURSE DESCRIPTION

Course objectives	Current knowledge and dilemmas about pathogenesis, epidemiology, diagnosis, and treatment of human and bird influenza will be presented through selected examples by using methods of evidence-based medicine (EBM).
Course enrollment requirements and initial competencies required for the course	First-year courses.
Expected learning outcomes at the course level (4 to 10 learning outcomes)	Use of EBM methods in clinical research and practice. Use of EBM methods in infectious diseases on influenza as an example
Course content per type of class and number of class hours	Lecture (2 h): Influenza yesterday, today, and tomorrow (pathogenesis, epidemiology, diagnosis, and treatment) Seminar 1 (2 h): Can H5 N1 cause a new influenza pandemic? Seminar 2 (2 h): How changes in viral antigens influence the occurrence of epidemics and pandemics Seminar 3 (2 h): Pathogenesis and immunology of influenza Seminar 4 (2 h): Laboratory diagnosis of human and bird influenza Seminar 5 (2 h): Treatment of human and bird influenza
Types of class:	☒ lectures ☒ seminars and workshops ☐ practicum ☐ *full online course* ☐ combined e-learning ☐ field work ☐ independent work tasks ☐ multimedia ☐ laboratory ☐ mentoring ☐ (other)
Student obligations	

Student performance follow-up (provide ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)*:*						
	Class attendance		Research		Practical work	
	Experimental work		Report		(other)	
	Essay		Seminar paper		(other)	
	Tests		Oral exam		(other)	
	Written exam		Project		(other)	

Grading and evaluating student performance in class and at the	One problem-solving task.

final exam			
Required literature (available in the library and via other media)	**Title**	**Number of copies in the library**	**Availability via other media**
	Summaries of lectures and seminars		
	V. Draženović: Knjiga o gripi; adaptirano prema Kamps BS-Hoffmann C-Preiser W: Influenza report 2006. Zagreb;Luk, 2006.		
	http://www.cdc.gov/mmwr/preview/mmwrhtml/rr540a1.htm. http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5502a1.htm.		
Additional literature			
Quality assurance methods to ensure achievement of learning outcomes	Following-up student performance in seminars; student survey.		
Other (in Course proposer's opinion)			

COURSE	**NEUROLOGIC EMERGENCIES**					
Code	MEBI45	Year of the program	2			
Course director/s	Assist. Prof. Dr. Sc. Ivo Bekavac	Credits (ECTS)	4			
Associate faculty		Types of class (number of hours per semester)	L	S	P	T
			4	16	0	20
Course status	elective	Percentage of e-learning	0%			
COURSE DESCRIPTION						
Course objectives	Review of the most common neurologic emergencies and their clinical presentations, pathophysiology, and treatment.					
Course enrollment requirements and initial competencies required for the course	First-year courses.					
Expected learning outcomes at the	Understanding the importance of neurologic emergencies in medicine.					

<table>
<tr><td>course level (4 to 10 learning outcomes)</td><td colspan="6">Detailed description of clinical presentations, pathophysiology, diagnosis, and treatment of neurologic emergencies.</td></tr>
<tr><td>Course content per type of class and number of class hours</td><td colspan="6">Lecture (2 h): Neurologic emergencies

Seminar 1 (2h): Intracerebral hemorrhage

Seminar 2 (2h): Traumatic brain injury

Seminar 3 (2h): Acute ischemic cerebral infarction

Seminar 5 (2h): Myasthenia gravis</td></tr>
<tr><td>Types of class:</td><td colspan="3">☒ lectures
☒ seminars and workshops
☐ practicum
☐ full online course
☐ combined e-learning
☐ field work</td><td colspan="3">☐ independent work tasks
☐ multimedia
☐ laboratory
☐ mentoring
☐ (other)</td></tr>
<tr><td>Student obligations</td><td colspan="6"></td></tr>
<tr><td rowspan="6">Student performance follow-up (provide ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course):</td><td>Class attendance</td><td></td><td>Research</td><td></td><td>Practical work</td><td></td></tr>
<tr><td>Experimental work</td><td></td><td>Report</td><td></td><td>(other)</td><td></td></tr>
<tr><td>Essay</td><td></td><td>Seminar paper</td><td></td><td>(other)</td><td></td></tr>
<tr><td>Tests</td><td></td><td>Oral exam</td><td></td><td>(other)</td><td></td></tr>
<tr><td>Written exam</td><td></td><td>Project</td><td></td><td>(other)</td><td></td></tr>
<tr><td colspan="6"></td></tr>
<tr><td>Grading and evaluating student performance in class and at the final exam</td><td colspan="6">Solving a problem</td></tr>
<tr><td rowspan="5">Required literature (available in the library and via other media)</td><td colspan="4">Title</td><td>Number of copies in the library</td><td>Availability via other media</td></tr>
<tr><td colspan="4">Summaries of lectures and seminars</td><td></td><td></td></tr>
<tr><td colspan="4">Eelco F.M. Wijdicks. The clinical practice of critical care neurology.</td><td></td><td></td></tr>
<tr><td colspan="4">Stephen L. Hauser. Harrison's Neurology in Clinical Medicine</td><td></td><td></td></tr>
<tr><td colspan="4">Noseworthy. Neurological therapeutics.</td><td></td><td></td></tr>
</table>

	Victor & Ropper. Principles of neurology.		
Additional literature			
Quality assurance methods to ensure achievement of learning outcomes	Following-up student performance in seminars; student survey.		
Other (in Course proposer's opinion)			

COURSE	**HOSPITAL "SUPERBUGS"**					
Code	MEBI47	Year of the program	2			
Course director/s	Prof. Dr. Sc. Marija Tonkić	Credits (ECTS)	2			
Associate faculty	Assist. Prof. Dr. Sc. Ivana Goić-Barišić Assoc. Prof. Dr. Sc. Ivo Ivić	Types of class (number of hours per semester)	L	S	P	T
			3	8	0	11
Course status	elective	Percentage of e-learning	0%			
COURSE DESCRIPTION						
Course objectives	The prevalence and characteristics of infections caused by multidrug-resistant bacteria in hospital setting; epidemiology, pathogenesis, diagnosis, control, and prevention of infections caused by multidrug-resistant Gram-positive and Gram-negative pathogenic/opportunistic bacteria and possibilities of their antimicrobial treatment.					
Course enrollment requirements and initial competencies required for the course	First-year courses.					
Expected learning outcomes at the course level (4 to 10 learning outcomes)	Students will be introduced to one of the burning problems in medicine today – infections caused by multidrug-resistant microorganisms mostly in hospital setting, primarily at intensive care units, hematologic and transplantation departments. Students will gain knowledge in the epidemiology, pathogenesis, diagnosis, control, and prevention of infections caused by multidrug-resistant Gram-positive and Gram-negative pathogenic/opportunistic bacteria and fungi. Knowledge about appropriate choice of biological material and antimicrobial therapy and measures of control and prevention of infections caused by multidrug-resistant microorganisms.					

Course content per type of class and number of class hours	Lecture (1 s): Importance of infections caused by multidrug-resistant nosocomial pathogens Seminar (2 s): Multidrug-resistant enterobacteria Seminar (2 s): Multidrug-resistant Gram-negative non-fermenting pathogens: Pseudomonas aeruginosa, Acinetobacter baumannii, Stenotrophomonas maltophilia Seminar (2 s): MRSA, MRSE, VRE Seminar (2 s): Clostridium difficile Lecture (2 s): Antimicrobial treatment of infections caused by multidrug-resistant pathogens

Types of class:	☒ lectures ☒ seminars and workshops ☐ practicum ☐ *full online course* ☐ combined e-learning ☐ field work	☐ independent work tasks ☐ multimedia ☐ laboratory ☐ mentoring ☐ (other)

Student obligations						
Student performance follow-up (provide ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)*:*	Class attendance		Research		Practical work	
	Experimental work		Report		(other)	
	Essay		Seminar paper		(other)	
	Tests		Oral exam		(other)	
	Written exam		Project		(other)	
Grading and evaluating student performance in class and at the final exam	Written exam					

	Title	**Number of copies in the library**	**Availability via other media**
Required literature (available in the library and via other media)	Summaries of lectures and seminars		
	Brooks GF, Carroll KC, Butel JS, Morse SA, Mietzner TA, ur. Jawetz, Melnick & Adelberg's Medical Microbiology. 26. izd. New York:McGrawHill; 2013. (odabrana poglavlja) Lim CJ, Cheng AC, Kennon J, Spelman D, Hale D, Melican G, et al. Prevalence of multidrug-resistant organisms and risk factors for carriage in long-term care facilities: a nested case-control study. J Antimicrob Chemother 2014;69:1972-80.		

	Viale P, Giannella M, Lewis R, Trecarichi EM, Petrosillo N, Tumbarello M. Predictors of mortality in multidrug-resistant *Klebsiella pneumoniae* bloodstream infections. Expert Rev Anti Infect Ther 2013;11:1053-63.		
	Savard P, Perl TM. A call for action: managing the emergence of multidrug-resistant *Enterobacteriaceae* in the acute care settings. Curr Opin Infect Dis 2012;25:371		
	Shenoy ES, Paras ML, Noubary F, Walensky RP, Hooper DC. Natural history of colonization with methicillin-resistant *Staphylococcus aureus* (MRSA) and vancomycin-resistant *Enterococcus* (VRE): a systematic review. BMC Infect Dis 2014;14:177.		
	Howard A, O'Donoghue M, Feeney A, Sleator RD *Acinetobacter baumannii*: an emerging opportunistic pathogen. Virulence 2012;3:243-50.		
	Slimings C, Riley TV. Antibiotics and hospital-acquired *Clostridium difficile* infection: update of systematic review and meta-analysis. J Antimicrob Chemother. 2014;69:881-91.		
Additional literature	http://www.ecdc.europa.eu. http://www.who.int		
Quality assurance methods to ensure achievement of learning outcomes	Student survey.		
Other (in Course proposer's opinion)			

COURSE	PREVENTION OF CARDIOVASCULAR DISEASES					
Code	MEBI48	Year of the program	2			
Course director/s	Assist. Prof. Dr. Sc. Katarina Novak	Credits (ECTS)	2			
Associate faculty		Types of class (number of hours per semester)	L	S	P	T
			2	10	0	12
Course status	elective	Percentage of e-learning	0%			

COURSE DESCRIPTION						
Course objectives	Cardiovascular (CV) risk factors, their pathophysiology and treatment; nutrition and physical activity in primary and secondary prevention					
Course enrollment requirements and initial competencies required for the course	First-year courses.					
Expected learning outcomes at the course level (4 to 10 learning outcomes)	Understanding the importance of cardiovascular disease prevention in medicine. Detailed description of primary and secondary prevention measures, pathophysiology, implementation and importance of these measures in the reduction of CV morbidity and mortality.					
Course content per type of class and number of class hours	Lecture (2 h): Risk factors for development of CV diseases Seminar 1 (2h): Primary and secondary prevention of CV diseases Seminar 2 (2h): Importance of nutrition and physical activity in CV disease prevention Seminar 3 (2h): Pharmacotherapy in CV disease prevention Seminar 4 (2h): Thromboembolism prevention					
Types of class:	☒ lectures ☒ seminars and workshops ☐ practicum ☐ *full online course* ☐ combined e-learning ☐ field work		☐ independent work tasks ☐ multimedia ☐ laboratory ☐ mentoring ☐ (other)			
Student obligations						
Student performance follow-up (provide ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)*:*	Class attendance		Research		Practical work	
	Experimental work		Report		(other)	
	Essay		Seminar paper		(other)	
	Tests		Oral exam		(other)	
	Written exam		Project		(other)	
Grading and evaluating student performance in	Written exam					

class and at the final exam			
Required literature (available in the library and via other media)	**Title**	**Number of copies in the library**	**Availability via other media**
	Summaries of lectures and seminars		
Additional literature			
Quality assurance methods to ensure achievement of learning outcomes	Student survey.		
Other (in Course proposer's opinion)			

COURSE	**EVIDENCE-BASED CARDIOLOGY- MODERN DIAGNOSIS AND TREATMENT OF HEART FAILURE**					
Code	MEBI 49	Year of the program	2			
Course director/s	Assist. Prof. Dr. Sc. Duška Glavaš	Credits (ECTS)	2.5			
Associate faculty	Prof. Dr. Sc. Ivica Vukovic, Prof. Dr. Sc. Darko Duplančić, Prof. Dr. Sc. Damir Fabijanić, Prof. Dr. Sc. Viktor Čulić, Assist. Prof. Dr. Sc. Lovel Giunio, Assist. Prof. Dr. Sc. Katarina Novak, Assist. Prof. Dr. Sc. Tonći Batinić, Prof. Dr. Sc. Darija Baković, Assist. Prof. Dr. Sc. Kristijan Bulat	Types of class (number of hours per semester)	L	S	P	T
			5	5	5	15
Course status	Elective	Percentage of e-learning	0%			
COURSE DESCRIPTION						
Course objectives	Current knowledge and dilemmas regarding the pathogenesis, diagnosis, and treatment of heart failure will be presented using the evidence-based medicine (EBM) methods.					
Course enrollment requirements and initial competencies required for the course	First-year courses.					

Expected learning outcomes at the course level (4 to 10 learning outcomes)	Use of EBM methods in clinical research and practice. Use of EBM methods in cardiology
Course content per type of class and number of class hours	1. Epidemiology of heart failure (HF); Patient history and physical status 2. Diagnosis of HF: with history and status, ECG, chest X-ray, laboratory findings - NT pro BNP, heart ultrasound, ergometry, Holter, coronarography, CT/MSCT/NMR of the heart and blood vessels, myocardial scintigraphy, radiocardiography) 3. Non-surgical treatment of HF (dietary measures, medicines, PCI, TAVI, pace-makers, ICD, resynchronisation therapy, surgical methods) 4. Surgical treatment of HF (bypass, valve replacement, VAD, ECMO, intra-aortic balloon-pump, mechanical heart) 5. HF prevention
Types of class:	☒ lectures ☒ seminars and workshops ☒ practicum ☐ *full online course* ☐ combined e-learning ☐ field work ☐ independent work tasks ☐ multimedia ☐ laboratory ☐ mentoring ☐ (other)
Student obligations	

Student performance follow-up (provide ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)*:*					
Class attendance		Research		Practical work	
Experimental work		Report		(other)	
Essay		Seminar paper		(other)	
Tests		Oral exam		(other)	
Written exam		Project		(other)	

Grading and evaluating student performance in class and at the final exam	Oral and written exam

Required literature (available in the library and via other media)	**Title**	**Number of copies in the library**	**Availability via other media**
	Vrhovec-Interna Medicina (zadnje izdanje); Harrison's Principles of Internal medicine (18th edition); Braunwald: Heart disease (last edition, 2011)		

Additional literature	McMurray JJ, Adamopoulos S, Anker SD et al. ESC guidelines for the diagnosis and treatment of acute and chronic heart failure 2012. Eur J Heart Fail 2012; 14: 803-869.
Quality assurance methods to ensure achievement of learning outcomes	Teaching quality evaluation by students and faculty; exam pass rates; reports of the Committee for Control of Teaching Delivery; extramural evaluation (by quality control teams from the National Quality Assurance Agency)
Other (in Course proposer's opinion)	

COURSE	DOCTORAL DISSERTATION TOPIC PROPOSAL II					
Code	MEBO06	Year of the program	2			
Course director/s	Academician Stjepan Gamulin, prof. dr. Željko Dujić	Credits (ECTS)	0.5			
Associate faculty	Assist. Prof. Dr. Sc. Ivana Kolčić	Types of class (number of hours per semester)	L	S	P	T
			1	4		6
Course status	Mandatory	Percentage of e-learning	0%			

COURSE DESCRIPTION						
Course objectives	Mastering the methodology of preparing the idea for a research project, expecially doctoral dissertation topic proposal.					
Course enrollment requirements and initial competencies required for the course	Passed exams from the first-year mandatory courses, enrolment in the 2nd year of the program. Completed questionnaire on doctoral dissertation topic proposal. 1.					
Expected learning outcomes at the course level (4 to 10 learning outcomes)	Mastering the search strategy of medical bibliographic databases in the field of the doctoral dissertation. Critical appraisal of literature sources. Overview of research problem and definition of research aims and hypothesis. Determining the protocol, including research algorithm. Preparing the idea of topic proposal.					
Course content per type of class and number of class hours	Results of the survey on doctoral dissertation topic proposal 1 (1P) Discussion about the answers to the survey on doctoral dissertation topic proposal 1					
Types of class:	☒ lectures ☒ seminars and workshops ☐ practicum ☐*full online course* ☐ combined e-learning ☐ field work	x independent work tasks ☐ multimedia ☐ laboratory ☐ mentoring ☐ (other)				
Student obligations						
Student performance follow-up (provide ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)*):*	Class attendance	0,1	Research		Practical work	
	Experimental work		Report		Idea for topic proposal 0,4	
	Essay		Seminar paper		(other)	
	Tests		Oral exam		(other)	
	Written exam		Project		(other)	
Grading and evaluating student performance in class and at the final exam	Independent preparation of the idea for topic proposal.					
Required literature (available in the	**Title**				**Number of copies in**	**Availability via other media**

library and via other media)		**the library**	
	Guidelines for doctoral dissertation topic proposal, regulations regulating the doctoral graduation process at the University of Split School of Medicine		www.mefst.hr/pds/pravilnik o stjecanju doktorata.
	Marušić M i sur. Introduction to research in medicine., Zagreb;, Medicinska naklada, 2008	20	
	Gamulin S. Klinička istraživanja – klinička epidemiologija		
	.		
Additional literature			
Quality assurance methods to ensure achievement of learning outcomes	▪ Teaching quality evaluation by students and faculty ▪ Analysis of exam pass rates ▪ Reports of the Council for Control of Teaching Delivery ▪ Extramural evaluation (by quality control teams from the National Quality Assurance Agency, inclusion in TEEP)		
Other (in Course proposer's opinion)			

COURSE	**DOCTORAL DISSERTATION TOPIC PROPOSAL III**					
Code	MEBO06	Year of the program	3			
Course director/s	Academician Stjepan Gamulin, prof. dr. Željko Dujić	Credits (ECTS)	0.5			
Associate faculty	Assist. Prof. Dr. Sc. Ivana Kolčić	Types of class (number of hours per semester)	L	S	P	T
			1	4		6
Course status	Mandatory	Percentage of e-learning	0%			
COURSE DESCRIPTION						
Course objectives	Writing the doctoral dissertation topic proposal.					
Course enrollment requirements and initial competencies required for the course	Elaborated idea for doctoral dissertation topic proposal; enrollment into the 3rd year; filled-out questionnaire on doctoral dissertation topic proposal 2.					
Expected learning outcomes at the course level (4 to 10 learning outcomes)	Mastering the search strategy of medical bibliographic databases in the field of the doctoral dissertation. Critical appraisal of literature sources. Overview of research problem and definition of research aims and hypothesis. Determining the protocol, including research algorithm. Preparing the idea of topic proposal.					
Course content per type of class and number of class	Results of the survey on doctoral dissertation topic proposal 2 (1P) Discussion about the answers to the survey on doctoral dissertation topic proposal					

hours	2					
Types of class:	☒ lectures ☒ seminars and workshops ☐ practicum ☐*full online course* ☐ combined e-learning ☐ field work		x independent work tasks ☐ multimedia ☐ laboratory ☐ mentoring ☐ (other)			
Student obligations						
Student performance follow-up (provide ECTS credits for each activity so that the total number of ECTS credits is equal to the ECTS value of the course)*):*	Class attendance	0,1	Research		Practical work	
	Experimental work		Report		Topic proposal 0,4	
	Essay		Seminar paper		(other)	
	Tests		Oral exam		(other)	
	Written exam		Project		(other)	
Grading and evaluating student performance in class and at the final exam	Independent preparation of the idea for topic proposal					

	Title	**Number of copies in the library**	**Availability via other media**
Required literature (available in the library and via other media)	Guidelines for doctoral dissertation topic proposal, regulations regulating the doctoral graduation process at the University of Split School of Medicine		www.mefst.hr/pds/pravilnik o stjecanju doktorata.
	Marušić M i sur. Introduction to research in medicine., Zagreb; Medicinska naklada, 2008	20	
	Gamulin S. Klinička istraživanja – klinička epidemiologija		
	.		
Additional literature			
Quality assurance methods to ensure achievement of learning outcomes	▪ Teaching quality evaluation by students and faculty ▪ Analysis of exam pass rates ▪ Reports of the Council for Control of Teaching Delivery ▪ Extramural evaluation (by quality control teams from the National Quality Assurance Agency, inclusion in TEEP)		
Other (in Course proposer's opinion)			

3. CONDITIONS OF PROGRAM DELIVERY

3.1. Program delivery sites

Facilities (list the facilities that exists, are under construction, or planned for construction)	
Facility	Basic Medical Sciences – BMS (Building A)
Location	Šoltanska 2, Križine, Split
Year of construction	1976
Total floor area in m^2	4802
Facility	For teaching and administration offices (Building B)
Location	Šoltanska 2, Križine, Split
Year of construction	2011
Total floor area in m^2	4700
Facility	Hostel for visiting faculty and restaurant (Building C)
Location	Šoltanska 2, Križine, Split
Year of construction	2014
Total floor area in m^2	1531
Facility	Pathological-anatomical complex (PAC)
Location	Šoltanska 2, Križine, Split
Year of construction	1986
Total floor area in m^2	2800

3.2. Faculty and associates per courses

Course	Faculty and associates:
1. Ethics in clinical research	Zvonko Rumboldt
2. Evidence-based global health	Ozren Polašek Ivana Kolčić
3. Writing a research paper	Zoran Đogaš
4. Clinical biostatistics	Davor Eterović Goran Kardum Ana Jerončić
5. Clinical research and measurement	Željko Dujić Marko Ljubković Jasna Marinović Darija Baković

6. Evidence-based medicine	Stjepan Gamulin Ivana Kolčić
7. Methodology of clinical research	Eduard Vrdoljak Tomislav Omrčen Marijo Boban Branka Petrić Miše
8. Writing research projects	Jasna Marinović Marko Ljubković
9. Medical information search	Jelka Petrak Helena Markulin Ana Utrobičić
10. Doctoral dissertation topic proposal	Stjepan Gamulin Željko Dujić
11. Approach to research in biomedicine	Ozren Polašek Ivana Kolčić
12. Introduction to evidence-based medicine	Stjepan Gamulin Ivana Kolčić
13. Introduction to research in medicine	Zoran Đogaš
14. Healthcare quality, assessment and improvement	Nataša Boban
15. Evidence-based medicine in clinical practice	Ivana Kolčić
16. Quantitative methods in clinical research	Stjepan Gamulin Ivana Kolčić
17. Doctoral dissertation topic proposal II	Stjepan Gamulin Željko Dujić
18. Doctoral dissertation topic proposal III	Stjepan Gamulin Željko Dujić

3.3. Faculty information

Title, first and last name	Prof. dr. Zvonko Rumboldt
Course taught at the proposed study program	Ethics in clinical research
GENERAL INFORMATION	
Address	Split, Lovretska 1
Phone	319 833
E-mail	zr@mefst.hr
Personal webpage	/
Born	1938
Registration number in Scientist Registry	36500
Academic rank and last date of appointment	Prof. Emeritus, retired
Research and teaching, artistic and teaching, or teaching-only position and last date of appointment	
Area and field of appointment to academic rank	03 February 2009
PARTICULARS OF PRESENT EMPLOYMENT	
Institution of employment	-
Date of employment	-
Job title (professor, researcher, assistant, etc)	-
Field of work	-
Function	-
EDUCATION - Highest degree attained	
Profession/Rank	physician
Institution	School of Medicine
Place	Zagreb
Date	1963.
FURTHER EDUCATION	
Year	1972
Place	Zagreb
Institution	School of Medicine
Further education field	internal medicine
LANGUAGES SPOKEN	
Mother tongue	Croatian
Foreign language proficiency level on a scale from 2 (sufficient) to 5 (excellent)	English 4
Strani jezik i poznavanje jezika na ljestvici od 2 (dovoljno) do 5 (izvrsno)	Italian 4
Foreign language proficiency level on a scale from 2 (sufficient) to 5 (excellent)	
SUBJECT-AREA COMPETENCY	
Previous experience in delivering similar courses (title of the course, study program, program level)	
Authorship of university/school-level textbooks in the subject field	-
Professional, research and artistic papers published in previous 5	1. Carević V, Kuzmanić M, Rumboldt M, Rumboldt Z. Predictive impact of coronary risk factors in Southern

years in the subject field (up to 5 references)	Croatia: a case-control study. Coll Antropol 2010;34:1363-8. 2. Rumboldt M, Kuzmanić M, Petric D, Rumboldt Z. Unsatisfactory cardiovascular risk control – opportunities for family medicine. Zdrav Var 2011;50:75-81. 3. Chow CK, Islam S, Bautista L, Rumboldt Z i sur. Parental history and myocardial infarction risk across the world. The INTERHEART study. JACC 2011;57:619-27. 4. McGorrian C, Yusuf S, Islam S i sur. Estimating modifiable coronary heart disease risk in multiple regions of the world: the INTERHEART Modifiable Risk Score. Eur Heart J 2011;32:581-90. 5. Novak K, Polic S, Capkun V i sur. Free wall rupture (FWR) in patients with acute ST-elevation myocardial infarction (STEMI) receiving fibrinolytic therapy (FT): a 7-year prospective study. Arch Gerontol Geriatr 2012;54:266-70.
Professional and research papers on teaching quality and methodology published in the previous 5 years (up to 5 references)	1. Rumboldt Z. Etička pitanja u kliničkim istraživanjima. U Zn Etika u medicinskoj znanosti. Zagreb: CBE, 2009:57-66. 2. Rumboldt Z. Prosudba znanstvenog djela. U Rumboldt M, Grković I, ur. Suvremena saznanja o laktaciji i dojenju. Sp Medicine, 12.-14.11.2009:1-6. 3. Rumboldt Z. O nastavi medicinske etike na medicinskim fakultetima. CUS 2013;48: 404-19. 4. Rumboldt Z. Što je to plagijat u znanosti? Arh Hig Rada Toksikol 2014;65:233-6. 5. Rumboldt Z. Religioznost i medicinska etika. CUS 2014;49:352-68.
Professional, research and artistic projects in the subject field in previous 5 years (up to 5 references)	-
Program and degree attained in methodic-psychological-didactic-pedagogical competences	-
ACKNOWLEDGMENTS AND AWARDS	
Acknowledgments and awards for teaching and research/artistic work	-

Title, first and last name	Assoc. Prof. Dr. Sc. Ozren Polašek
Course(s) taught at the proposed study program	Evidence-based global health Approach to research in biomedicine
GENERAL INFORMATION	
Address	Šoltanska 2
Phone	+38521557913
E-mail	Ozren.polasek@mefst.hr
Personal webpage	
Born	1979
Registration number in Scientist Registry	271725
Academic rank and last date of appointment	Senior research associate, 23.06.2013.
Research and teaching, artistic and teaching, or teaching-only position and last date of appointment	Associate professor, 04 July 2014
Area and field of appointment to academic rank	Public health
PARTICULARS OF PRESENT EMPLOYMENT	
Institution of employment	School of Medicine in Split
Date of employment	07.12.2010
Job title (professor, researcher, assistant, etc)	Associate professor
Field of work	Public health
Function	Head of department
EDUCATION - Highest degree attained	
Profession/Rank	Doctor of science
Institution	School of Medicine in Zagreb / School of Medicine in Edinburgh
Place	Zagreb / Edinburgh
Date	13 January 2008 / 07 April 2009
FURTHER EDUCATION	
Year	2011
Place	Zagreb
Institution	School of Medicine
Further education field	Public health
LANGUAGES SPOKEN	
Mother tongue	Croatian
Foreign language proficiency level on a scale from 2 (sufficient) to 5 (excellent)	English 5
Foreign language proficiency level on a scale from 2 (sufficient) to 5 (excellent)	
Foreign language proficiency level on a scale from 2 (sufficient) to 5 (excellent)	
SUBJECT-AREA COMPETENCY	
Previous experience in delivering similar courses (title of the course, study program, program level)	/
Authorship of university/school-level textbooks in the subject field	3 textbooks
Professional, research and artistic papers published in previous 5 years in the subject field (up to 5 references)	1.Lu Y, Vitart V, Burdon KP, et al. GWAS on central corneal thickness identifies a total of 27 associated loci, including six risk loci for eye disease keratoconus. Nature Genetics, 2013;45:155-63 [PubMed ID23291589] 2. Berndt SI, Gustafsson S, Magi R, et al. Large - scale genome - wide meta - analysis identifies 11 novel loci for

	anthropometric traits and provides new insights on the genetic architecture of the extremes of the distribution. Nature Genetics, 2013;45:501-12 [PubMed ID23563607] 3.Köttgen A, Albrecht E, Teumer A, et al. Genome-wide association analyses identify 18 new loci associated with serum urate. Nature Genetics, 2013;45:145-54 [PubMed ID23263486] 4.den Hoed M, Eijgelsheim M, Esko T, et al. Heart rate-associated loci and their effects on cardiac conduction and rhythm disorders. Nature Genetics, 2013;45:621-31 [PubMed ID23583979] 5.Sabater-Lleal M, Huang J, Chasman DI, et al. A Multi-ethnic meta-analysis of genome-wide association studies in over 100,000 subjects identifies 23 fibrinogen-associated loci but no strong evidence of a causal association between circulating fibrinogen and cardiovascular disease. Circulation. 2013;128:1310-24 [PubMed ID23969696]
Professional and research papers on teaching quality and methodology published in the previous 5 years (up to 5 references)	1. Polasek O, Kolcic I. Croatia's brain drain. BMJ. 2005 Nov 19;331(7526):1204. 2. Polasek O, Kolcić I, Buneta Z, Cikes N, Pećina M. Scientific production of research fellows at the Zagreb University School of Medicine, Croatia. Croat Med J. 2006 Oct;47(5):776-82. 3. Polasek O, Mavrinac M, Jović A, Dzono Boban A, Biocina-Lukenda D, Glivetić T, Vasilj I, Petrovecki M. Undergraduate grade point average is a poor predictor of scientific productivity later in career. Coll Antropol. 2010 Mar;34 Suppl 1:1-5. 4. Polasek O, Kolcic I. Academic performance and scientific involvement of final year medical students coming from urban and rural backgrounds. Rural Remote Health. 2006 Apr-Jun;6(2):530. 5. Petrovecki M, Smiljanić L, Troselj M, Polasek O. Employment outcomes among junior researchers in medicine in Croatia. Croat Med J. 2008 Feb;49(1):91-7.
Professional, research and artistic projects in the subject field in previous 5 years (up to 5 references)	2014.- Project leader „RISEdb – Respiratory Infections Susceptibility genetics database“, [HRZZ potpora doktoranada] 2014.- Project leader „Pleitropy, gene networks and gene pathways in isolated human populations: the 10,001 Dalmatians biobank“, [HRZZ; 8875] 2014.- Project leader-partner „Platform foR European Preparedness Against (Re-) emerging Epidemics - PREPARE“, [FP7; 602525] 2013.- Project leader-partner „Biobanking and Biomolecular Resources Research Infrastructure - Large prospective cohorts; BBMRI-LPC“, [FP7; 313010] 2012.- Project leader-partner „Developmental neurotoxicity assessment of mixtures in children; DENAMIC“, [FP7; 282957]
Program and degree attained in methodic-psychological-didactic-pedagogical competences	Art of medical teaching
ACKNOWLEDGMENTS AND AWARDS	
Acknowledgments and awards for teaching and research/artistic work	2014. Leader of the best research project in the area of biomedicine (http://sci.bioinfo.hr) 2011. EFIC-EGG grant award for Young Researchers 2009. New hot paper award, ISI Thomson Reuters, November Edition of Sciencewatch.com 2007. State award for research fellows in biomedicine, Croatian Parliament 2006. Overseas Research Scheme Scholarship, University of Edinburgh

	2006. Scholarship ASPHER-a (Association of Schools of Public Health in the European Region) 2005. Postgraduate one-time assistance, Croatian Ministry of Science, Education, and Sport 2005. Scholarship for doctoral study program: Public Health Sciences, University of Edinburgh 2005. Scholarship "Research Training in Public Health", Erasmus University; Rotterdam, the Netherlands 2003. Deans Award for Best Student

Title, first and last name	Prof. Dr. Sc. Zoran Đogaš
Course taught at the proposed study program	Writing a research paper Introduction to research in medicine
GENERAL INFORMATION	
Address	Department of Neuroscience University of Split, School of Medicine, Šoltanska 2, 21000 Split
Phone	+38521557005
E-mail	zdogas@mefst.hr
Personal webpage	http://tkojetko.irb.hr/znanstvenikDetalji.php?sifznan=6734
Born	1966
Registration number in Scientist Registry	214812
Academic rank and last date of appointment	Research advisor, tenured
Research and teaching, artistic and teaching, or teaching-only position and last date of appointment	Full professor, tenured
Area and field of appointment to academic rank	Biomedicine and healthcare Basic medical sciences
PARTICULARS OF PRESENT EMPLOYMENT	
Institution of employment	University of Split, School of Medicine
Date of employment	1996
Job title (professor, researcher, assistant, etc)	Full professor, researcher
Field of work	Neuroscience, sleep medicine
Function	The Dean, Head of Department

EDUCATION - Highest degree attained	
Profession/Rank	Dr. Sc.
Institution	University of Zagreb, School of Medicine
Place	Split
Date	
FURTHER EDUCATION	
Year	Dr. sc.
Place	University of Zagreb, School of Medicine
Institution	Split
Further education field	Neurophysiology and neuropharmacology in control of breathing
LANGUAGES SPOKEN	
Mother tongue	Croatian
Foreign language proficiency level on a scale from 2 (sufficient) to 5 (excellent)	English (5)
Foreign language proficiency level on a scale from 2 (sufficient) to 5 (excellent)	Serbian (4), Slovenian (3), Macedonian (3)
Foreign language proficiency level on a scale from 2 (sufficient) to 5 (excellent)	Italian (2), German (2)
SUBJECT-AREA COMPETENCY	
Previous experience in delivering similar courses (title of the course, study program, program level)	Basis of neuroscience, Medicine, integrated undergraduate and graduate program Basis of neuroscience, Dental medicine, integrated undergraduate and graduate program Physiology, Medicine, integrated undergraduate and graduate program Research in biomedicine and healthcare, Medicine, Dental medicine, integrated undergraduate and graduate program Introduction to research in medicine, Medicine, integrated undergraduate and graduate program Introduction to research in medicine, Evidence-based medicine, doctoral program Sleep apnea, Evidence-based medicine and Translational research in biomedicine and healthcare, doctoral program Data collection and analysis methods, Basics of research in nursing, Selected chapters from neuroscience, Nursing, professional study program Medical informatics, Nursing, professional study program Informatics, Physiotherapy, professional study program
Authorship of university/school-level textbooks in the subject field	Sleep Medicine Textbook, Eds. Bassetti C, Dogas Z, Peigneux P. Wiley & European Sleep Research Society, Regensburg, 2014 Đogaš Z, Data presentation (chapter 10), In: Marušić M et al. Introduction to research in medicine, 5th ed. Medicinska naklada, Zagreb, 2013. Đogaš Z, Kardum G, Pecotić R, Valić M, Vilović K. Practical workbook in Basis of Neuroscience, School of Medicine in Split, 2002-2006. (Practical guide for Basis of neuroscience, undergraduate study program)

	Guyton i Hall, Medical physiology, 9th, 10th, and 11th edition, Medicinska naklada, Zagreb, (translation of 4 chapter, undergraduate study program) Đogaš Z, Kardum G. Basic informatics for medical students, MF Split, 2002-2006. (Practical guide in medical informatics at medical schools in Split and Mostar) Electrophysiological methods in medical research (introduction chapter), Medicinska naklada, Zagreb, 2001. (postgraduate study program, School of Medicine in Zagreb)
Professional, research and artistic papers published in previous 5 years in the subject field (up to 5 references)	• FISCHER J, **DOGAS Z**, BASSETTI CL, BERG S, GROTE L, JENNUM P, LEVY P, MIHAICUTA S, NOBILI L, RIEMANN D, PUERTAS CUESTA FJ, RASCHKE F, SKENE DJ, STANLEY N, PEVERNAGIE D; Executive Committee (EC) of the Assembly of the National Sleep Societies (ANSS); Board of the European Sleep Research Society (ESRS), Regensburg, Germany. Standard procedures for adults in accredited sleep medicine centres in Europe. J Sleep Res. 2012;21(4):357-68. doi: 10.1111/j.1365-2869.2011.00987.x. Epub 2011 Dec 2. • ALLEBRANDT KV, AMIN N, MÜLLER-MYHSOK B, ESKO T, TEDER-LAVING M, AZEVEDO RV, HAYWARD C, VAN MILL J, VOGELZANGS N, GREEN EW, MELVILLE SA, LICHTNER P, WICHMANN HE, OOSTRA BA, JANSSENS AC, CAMPBELL H, WILSON JF, HICKS AA, PRAMSTALLER PP, **DOGAS Z**, RUDAN I, MERROW M, PENNINX B, KYRIACOU CP, METSPALU A, VAN DUIJN CM, MEITINGER T, ROENNEBERG T. A K(ATP) channel gene effect on sleep duration: from genome-wide association studies to function in Drosophila. Mol Psychiatry. 2011. doi: 10.1038/mp.2011.142. [Epub ahead of print] • PAVLINAC DODIG I, PECOTIC R, VALIC M, **DOGAS Z**. Acute intermittent hypoxia induces phrenic long-term facilitation which is modulated by 5-HT1A receptor in the caudal raphe region of the rat.J Sleep Res. 2012;21(2):195-203. • Ivancev B, Carev M, Pecotic R, Valic M, Pavlinac Dodig I, Karanovic N, **Dogas Z**. Remifentanil reversibly abolished phrenic long term facilitation in rats subjected to acute intermittent hypoxia. J Physiol Pharmacol. 2013;64(4):485-92. • Marinov V, Valic M, Pecotic R, Karanovic N, Dodig IP, Carev M, Valic Z, **Dogas Z**. Sevoflurane and isoflurane monoanesthesia abolished the phrenic long-term facilitation in rats. Respir Physiol Neurobiol. 2013;189(3):607-13.
Professional and research papers on teaching quality and methodology published in the previous 5 years (up to 5 references)	• Penzel T, Pevernagie D, **Dogas Z**, Grote L, de Lacy S, Rodenbeck A, Bassetti C, Berg S, Cirignotta F, d'Ortho MP, Garcia-Borreguero D, Levy P, Nobili L, Paiva T, Peigneux P, Pollmächer T, Riemann D, Skene DJ, Zucconi M, Espie C; For The Sleep Medicine Committee and The European Sleep Research Society. Catalogue of knowledge and skills for sleep medicine. J Sleep Res. 2013 23(2):222-38. • PECOTIC R, DODIG IP, VALIC M, IVKOVIC N, **DOGAS Z**. The evaluation of the Croatian version of the Epworth sleepiness scale and STOP questionnaire as screening tools for obstructive sleep apnea syndrome. Sleep Breath. 2012;16(3):793-802. • Kukolja Taradi S, Taradi M, **Dogas Z**. Croatian medical students see academic dishonesty as an acceptable behaviour: a cross-sectional multicampus study. J Med Ethics. 2012;38(6):376-9. • Kukolja Taradi S, Taradi M, Knežević T, Đogaš Z. Students come to medical schools prepared to cheat: a multi-campus investigation. J Med Ethics. 2010;36(11):666-70. • Kolčić I, Cikeš M, Boban K, Bućan J, Likić R, Curić G, Dogaš Z, Polašek O. Emigration-related attitudes of the final year medical students in Croatia: a cross-sectional study at the dawn of the EU accession. Croat Med J. 2014;55(5):452-8.
Professional, research and artistic projects in the subject field in previous 5 years (up to 5 references)	• Translational research on neuroplasticity of breathing and effect of intermittent hypoxia in anesthesia and sleep, HRZZ, 09/165, Principal investigator, 2014. • Neural control of breathing in sleep and wakefulness, Scientific Research Grant supported by the Croatian Ministry of Science, #216-2163166-0513, PI, 2007-2013 • Neural control of cardiovascular system, Scientific Research Grant supported by the Croatian Ministry of Science, #216-2163166-3342, Investigator, 2007-2013 • Neural control of cardiovascular system, Scientific Research Grant supported by the Croatian Science Foundation, #09/165, Investigator, 2013-
Program and degree attained in methodic-	Do It Yourself (1995-2015) TEMPUS project STEAMED (2006) CME course: "Skill of medical education and research work" - director (2006-2015)

psychological -didactic- pedagogical competences	
ACKNOWLEDGMENTS AND AWARDS	
Acknowledgments and awards for teaching and research/artistic work	Provost Award, University of Zagreb (1988) Medical Science Academy and Pliva Award "Borislav Nakić" for the best research work 1998 (2000) Best Mentor Award, School of Medicine in Split (2011) National Science Award in 2012, for popularization and promotion of science (2013)

Title, first and last name	Prof. Dr. Sc. Davor Eterović
Course taught at the proposed study program	Clinical biostatistics
OPĆE INFORMACIJE O NOSITELJU	
Address	Šoltanska 2, 21000 Split
Phone	+385 21 557-867
E-mail	davor.eterovic@mefst.hr
Personal webpage	
Born	1953
Registration number in Scientist Registry	
Academic rank and last date of appointment	Research advisor, 2005
Research and teaching, artistic and teaching, or teaching-only position and last date of appointment	Full professor, tenured, 2009
Area and field of appointment to academic rank	Natural sciences, physics
PARTICULARS OF PRESENT EMPLOYMENT	
Institution of employment	School of Medicine u Splitu
Date of employment	1996
Job title (professor, researcher, assistant, etc)	Professor
Field of work	Mathematic modeling in diagnosis and physiology, indirect clinical measurements, respiratory and renal physiology, radiation dosimetry, biostatistics
Function	Project leader
EDUCATION - Highest degree attained	
Profession/Rank	Doctor of Physics
Institution	Faculty of Science
Place	Zagreb
Date	1993
FURTHER EDUCATION	
Year	
Place	
Institution	
Further education field	
LANGUAGES SPOKEN	
Mother tongue	Croatian
Foreign language proficiency level on a scale from 2 (sufficient) to 5 (excellent)	English, 5
Foreign language proficiency level on a scale from 2 (sufficient) to 5 (excellent)	German, 2
Foreign language proficiency level	

on a scale from 2 (sufficient) to 5 (excellent)	
SUBJECT-AREA COMPETENCY	
Previous experience in delivering similar courses (title of the course, study program, program level)	
Authorship of university/school-level textbooks in the subject field	Eterović D.: Fizikalne osnove slikovne dijagnostike; Medicinska naklada, Zagreb, 2002.
Professional, research and artistic papers published in previous 5 years in the subject field (up to 5 references)	1. Eterović, Davor; Šitum, Marijan; Marković, Vinko; Kruoslav, Kuna; Punda, Ante. **Are we estimating the adverse effects of shock-wave lithotripsy on a faulty scale?**. // *Medical hypotheses*. **82** (2014.) , 6; 691-693.. 2. Eterović, Davor; Šitum, Marijan; Punda, Ante; Marković, Vinko; Kokić, Slaven. **Urinary obstruction depresses erythropoiesis which recovers after parenchyma-saving surgery but not SWL**. // *Urological research*. **38** (2010) , 1; 51-56 (članak, znanstveni). 3. Baković, Darija; Pivac, Nediljko; Eterović, Davor; Palada, Ivan; Valić, Zoran; Pauković-Sekulić, Branka; Dujić, Željko. **Changes in platelet size and spleen volume in response to selective and non-selective β -adrenoreceptor blockade in hypertensive patients**. // *Clinical and Experimental Pharmacology and Physiology*. **36** (2009) ; 441-446 4. Eterović, Davor; Marković, Vinko; Antunović, Željko; Punda, Ante. **Determinants of 131I radiation dose to thyroid follicular cells**. // *European journal of nuclear medicine and molecular imaging*. **36** (2009) , 4; 721-722 5. Eterović, Davor; Marković, Vinko; Punda, Ante; Antunović, Željko. **131I radiation dose distribution in metastases of thyroid carcinoma**. // *The Journal of nuclear medicine*. **50** (2009) , 5; 833-834
Professional and research papers on teaching quality and methodology published in the previous 5 years (up to 5 references)	
Professional, research and artistic projects in the subject field in previous 5 years (up to 5 references)	
Program and degree attained in methodic-psychological-didactic-pedagogical competences	
ACKNOWLEDGMENTS AND AWARDS	
Acknowledgments and awards for teaching and research/artistic work	National Science Award, 2003

Title, first and last name	Prof. Dr. Sc. Eduard Vrdoljak
Course taught at the proposed study program	Methodology in clinical research
GENERAL INFORMATION	
Address	Pazdigradska 46, Split
Phone	021 556 129
E-mail	edo.vrdoljak@gmail.com
Personal webpage	-
Born	1964.
Registration number in Scientist Registry	205415
Academic rank and last date of appointment	Full professor, tenured, 2012
Research and teaching, artistic and teaching, or teaching-only position and last date of appointment	-
Area and field of appointment to academic rank	Clinical oncology
PARTICULARS OF PRESENT EMPLOYMENT	
Institution of employment	Split University Hospital Center
Date of employment	1992.
Job title (professor, researcher, assistant, etc)	Head of Department of Oncology and Radiotherapy
Field of work	oncology
Function	Head of Department of Oncology
EDUCATION - Highest degree attained	
Profession/Rank	doctor of medicine
Institution	School of Medicine in Zagreb
Place	Zagreb
Date	1989
FURTHER EDUCATION	
Year	1992 – 1995
Place	Split
Institution	Split University Hospital Center, Center for Oncology and Radiotherapy
Further education field	oncology
LANGUAGES SPOKEN	
Mother tongue	Croatian
Foreign language proficiency level on a scale from 2 (sufficient) to 5 (excellent)	English, 5
Foreign language proficiency level on a scale from 2 (sufficient) to 5 (excellent)	-
Foreign language proficiency level on a scale from 2 (sufficient) to 5 (excellent)	-
SUBJECT-AREA COMPETENCY	
Previous experience in delivering similar courses (title of the course, study program, program level)	Teaching Clinical Oncology since 1994
Authorship of university/school-level textbooks in the subject field	**KLINIČKA ONKOLOGIJA,** Medicinska naklada, Zagreb 2013
Professional, research and artistic papers published in previous 5 years in the subject field (up to 5 references)	1. L. T. Vahdat, **E Vrdoljak**, H Gómez, R K Li, L Bosserman, J A. Sparano, J Baselga, P Mukhopadhyay, V Valeroi. Efficacy and safety of ixabepilone plus capecitabine in elderly patients with anthracycline- and taxane-pretreated metastatic breast cancer. J Geriatr Oncol. 2013 Oct; 4 (4):346-52. doi:

	10.1016/j.jgo.2013.07.006. 2. Miše BP, Telesmanić VD, Tomić S, Sundov D, Capkun V, **Vrdoljak E**. Correlation between E-cadherin Immunoexpression and Efficacy of First Line Platinum-Based Chemotherapy in Advanced High Grade Serous Ovarian Cancer. Pathol Oncol Res. 2014 Aug 11 PMID:25108408 3. von Minckwitz G, Puglisi F, Cortes J, **Vrdoljak** E, Marschner N, Zielinski C, Villanueva C, Romieu G, Lang I, Ciruelos E, De Laurentiis M, Veyret C, de Ducla S, Freudensprung U, Srock S, Gligorov J. Bevacizumab plus chemotherapy versus chemotherapy alone as second-line treatment for patients with HER2-negative locally recurrent or metastatic breast cancer after first-line treatment with bevacizumab plus chemotherapy (TANIA): an open-label, randomised phase 3 trial. Lancet Oncol. 2014 Oct;15(11):1269-78. doi: 10.1016/S1470-2045(14)70439-5. Epub 2014 Sep 28. PMID:25273342 4. Petrić Miše B**,** Boraska Jelavić T, Strikic A, Hrepić D**,** Tomić K, Hamm W, Tomić S, Prskalo T**, Vrdoljak E**. Long follow-up of patients with locally advanced cervical cancer treated with concomitant chemobrachyradiotherapy with cisplatin and ifosfamide followed by consolidation chemotherapy. International Journal of Gynecologycal Cancer, Oct 28, 2014. ISSN: 1048-891X, DOI:10.1097/IGC.0000000000000336 5. Vrdoljak E, Géczi L, Mardiak J, Ciuleanu T, Leyman S, Zhang K, Sajben P, Torday L. Central and Eastern European experience with sunitinib in metastatic renal cell carcinoma: a sub-analysis of the Global Expanded-Access Trial; Pathology & Oncology Research; PORE-D-14-00213R1, in press
Professional and research papers on teaching quality and methodology published in the previous 5 years (up to 5 references)	-
Professional, research and artistic projects in the subject field in previous 5 years (up to 5 references)	1. **Vrdoljak** E. Cancer in Croatia; where do we stand and how to move forward? Croat Med J. 2012 Apr;53(2):91-2. 2. Lindemann K, Christensen RD, Vergote I, Stuart G, Izquierdo MA, Kærn J, Havsteen H, Eisenhauer E, Ridderheim M, Lopez AB, Hirte H, Aavall-Lundquvist E, **Vrdoljak E**, Green J, Kristensen GB. First-line treatment of advanced ovarian cancer with paclitaxel/carboplatin with or without epirubicin (TEC versus TC)--a gynecologic cancer intergroup study of the NSGO, EORTC GCG and NCIC CTG. 2012 Oct;23(10):2613-9. Epub 2012 Apr 26. 3. Valero V, **Vrdoljak E**, Xu B, Thomas E, Gómez H, Manikhas A, Medina C, Li RK, Ro J, Bosserman L, Vahdat L, Mukhopadhyay P, Opatt D, Sparano JA. Maintenance of Clinical Efficacy After Dose Reduction of Ixabepilone Plus Capecitabine in Patients With

	Anthracycline- and Taxane-Resistant Metastatic Breast Cancer: A Retrospective Analysis of Pooled Data from 2 Phase III Randomized Clinical Trials. 2012 Aug;12(4):240-6. Epub 2012 Jun 2. 4. **Vrdoljak E,** Rini B, Schmidinger M, Omrčen T, Torday L, Szczylik C, Sella A. Bisphosphonates and VEGF-targeted drugs in treatment of patients with renal cell carcinoma metastatic to bone, Anticancer Drugs 2013 Jun;24(5):431-440. 5. **Vrdoljak E**, Torday L, Sella A, Leyman S, Bavbek S, Kharkevich G, Mardiak J, Szczylik C, Znaor A, Wilking N. Insights into cancer surveillance in Central and Eastern Europe, Israel and Turkey. Eur J Cancer Care (Engl). 2013 Nov 8. doi: 10.1111/ecc.12149.
Program and degree attained in methodic-psychological-didactic-pedagogical competences	Clinical oncology
ACKNOWLEDGMENTS AND AWARDS	
Acknowledgments and awards for teaching and research/artistic work	• The Best Paper, The 1st Croatian Oncological Congress, Plitvice, 2001 • Croatian Academy of Sciences and Arts Award for the highest research and artistic accomplishments in the Republic of Croatia in the field of medical sciences - 2008

Title, first and last name	Prof. Dr. Sc. Željko Dujić
Course taught at the proposed study program	Clinical research and measurement
GENERAL INFORMATION	
Address	Šoltanska 2
Phone	021 557 906
E-mail	zeljko.dujic@mefst.hr
Personal webpage	http://genom.mefst.hr/physiology/cv/zdujic.html
Born	1959
Registration number in Scientist Registry	160325
Academic rank and last date of appointment	Research advisor, 1999
Research and teaching, artistic and teaching, or teaching-only position and last date of appointment	Full professor, tenured, 2005
Area and field of appointment to academic rank	Basic medical sciences, Physiology
PARTICULARS OF PRESENT EMPLOYMENT	
Institution of employment	School of Medicine in Split
Date of employment	1988
Job title (professor, researcher, assistant, etc)	Professor
Field of work	Cardiovascular physiology, respiratory physiology, cerebrovascular physiology, exercise, environmental physiology
Function	Head of Institute for Integrative Physiology
EDUCATION - Highest degree attained	
Profession/Rank	MD
Institution	School of Medicine
Place	Zagreb
Date	1978-1983

FURTHER EDUCATION	
Year	1983-1986 Doctorate in Physiology
Place	Milwaukee, SAD
Institution	Medical College of Wisconsin, SAD
Further education field	Physiology
LANGUAGES SPOKEN	
Mother tongue	Croatian
Foreign language proficiency level on a scale from 2 (sufficient) to 5 (excellent)	English, 5
Foreign language proficiency level on a scale from 2 (sufficient) to 5 (excellent)	
Foreign language proficiency level on a scale from 2 (sufficient) to 5 (excellent)	
SUBJECT-AREA COMPETENCY	
Previous experience in delivering similar courses (title of the course, study program, program level)	Director of courses in physiology in many study programs at the School of Medicine in Split
Authorship of university/school-level textbooks in the subject field	Translated 2 textbooks in physiology into Croatian
Professional, research and artistic papers published in previous 5 years in the subject field (up to 5 references)	About 50 research papers in the previous 5 years Heusser K, Dzamonja G, Tank J, Palada I, Valic Z, Bakovic D, Obad A, Ivancev V, Diedrich A, Joyner MJ, Jordan J, **Dujic Z**. Sympathetic activation with voluntary apnea in elite divers. ***Hypertension*** 53:719-24, 2009. **Dujic Z**, Breskovic T. Impact of breath-holding on cardiovascular respiratory and cerebrovascular health. ***Sports Med*** 42(6): 1-14, 2012. Maslov PZ, Breskovic T, Brewer DN, Shoemaker JK, **Dujic Z**. Recruitment pattern of sympathetic muscle neurons during premature ventricular contractions in heart failure patients and controls. ***Am J Physiol Regul Integr Comp Physiol*** 303(11):R1157-64, 2012. Madden D, Lozo M, **Dujic Z**, Ljubkovic M. Exercise after SCUBA diving increases the incidence of arterial gas embolism. ***J Appl Physiol*** 115(5):716-22, 2013. Willie CK, Ainslie PN, Drvis I, MacLeod DB, Bain AR, Madden D, Zubin Malov P, **Dujic Z**. Brain blood flow in elite breath-hold divers during changes in arterial blood gases. ***J Cerebral Blood Flow M*** 35(1):66-73, 2014.
Professional and research papers on teaching quality and methodology published in the previous 5 years (up to 5 references)	
Professional, research and artistic projects in the subject field in previous 5 years (up to 5 references)	2009 – 2011: Koordinator Projecta “Physiology of SCUBA diving” financiranog od fonda the Unity through Knowledge Fund (kategorija 1B) 2009 – 2011: Suradnik na Projectu “Standard for evaluation of diving computers” financiranog od strane the Norwegian labor directorate (Norveška Vlada) 2011 – 2014: Partner na FP7 Marie Curie Initial Training Network project “Phypode – Physiolopathology of decompression: risk factors for the formation of intravascular bubbles during decompression”.

Program and degree attained in methodic-psychological-didactic-pedagogical competences	Doctorate in physiology, USA
ACKNOWLEDGMENTS AND AWARDS	
Acknowledgments and awards for teaching and research/artistic work	1996. Order of Morning star of Croatia with Ruđer Bošković face, received from the President of the Republic of Croatia 2003. Medical Science Award, Croatian Academy of Sciences and Arts 2006. Annual National Science Award, MSES

Title, first and last name	Assoc. Prof. Dr. Sc. Marko Ljubković
Course taught at the proposed study program	Writing research projects
GENERAL INFORMATION	
Address	Šoltanska 2
Phone	021 557 946
E-mail	marko.ljubković@mefst.hr
Personal webpage	
Born	1977
Registration number in Scientist Registry	299811
Academic rank and last date of appointment	Senior research fellow, 23.05.2012.
Research and teaching, artistic and teaching, or teaching-only position and last date of appointment	Associate professor, 19.7.2012.
Area and field of appointment to academic rank	Biomedicine and healthcare, basic medical sciences
PARTICULARS OF PRESENT EMPLOYMENT	
Institution of employment	School of Medicine u Splitu
Date of employment	1.11.2008.
Job title (professor, researcher, assistant, etc)	Associate professor
Field of work	Physiology
Function	Researcher, teacher
EDUCATION - Highest degree attained	
Profession/Rank	Doctor of medical sciences
Institution	Medical College of Wisconsin
Place	Milwaukee, SAD
Date	12 March 2007
FURTHER EDUCATION	
Year	2002-2007
Place	Milwaukee, SAD
Institution	Medical College of Wisconsin
Further education field	Physiology, research in cardiovascular system
LANGUAGES SPOKEN	
Mother tongue	Croatian
Foreign language proficiency level on a scale from 2 (sufficient) to 5 (excellent)	English, 5
Foreign language proficiency level on a scale from 2 (sufficient) to 5 (excellent)	
Foreign language proficiency level on a scale from 2 (sufficient) to 5 (excellent)	
SUBJECT-AREA COMPETENCY	
Previous experience in delivering similar courses (title of the course, study program, program level)	Medical Physiology, Medical College of Wisconsin, Studij Medicine, 2004-2007 Human Physiology, School of Medicine in Split, Medicine, since 2005 Human Physiology, School of Medicine in Split, Dental Medicine, since 2009 Human Physiology, School of Medicine in Split, Pharmacy,

	since 2011 Co-teaching one elective course
Authorship of university/school-level textbooks in the subject field	Translator and editor of a chapter in the textbook „Medicinska fiziologija“ Guytona i Halla
Research papers: 44 H-index: 18 Number of citations: 752	1. Sapunar D, Ljubković M, Lirk P, McCallum JB, Hogan QH. Distinct membrane effects of spinal nerve ligation on injured and adjacent dorsal root ganglion neurons in rats. Anesthesiology. 2005;103(2):360-76. 2. Jiang MT, Ljubković M, Nakae Y, Shi Y, Kwok WM, Stowe DF i sur. Characterization of human cardiac mitochondrial ATP-sensitive potassium channel and its regulation by phorbol ester in vitro. Am J Physiol Heart Circ Physiol. 2006;290(5):H1770-6. 3. Ljubković M, Marinović J, Fuchs A, Bosnjak ZJ, Bienengraeber M. Targeted expression of Kir6.2 in mitochondria confers protection against hypoxic stress. J Physiol. 2006;15;577(Pt 1):17-29. 4. Ljubković M, Mio Y, Marinović J, Stadnicka A, Warltier DC, Bosnjak ZJ i sur. Isoflurane preconditioning uncouples mitochondria and protects against hypoxia-reoxygenation. Am J Physiol Cell Physiol. 2007;292(5):C1583-90. 5. Stadnicka A, Marinović J, Ljubković M, Bienengraeber MW, Bosnjak ZJ. Volatile anesthetic-induced cardiac preconditioning. J Anesth. 2007;21(2):212-9. 6. Ljubković M, Shi Y, Cheng Q, Bosnjak Z, Jiang MT. Cardiac mitochondrial ATP-sensitive potassium channel is activated by nitric oxide in vitro. FEBS Lett. 2007;4;581(22):4255-9. 7. Jiang MT, Nakae Y, Ljubković M, Kwok WM, Stowe DF, Bosnjak ZJ. Isoflurane activates human cardiac mitochondrial adenosine triphosphate-sensitive K+ channels reconstituted in lipid bilayers. Anesth Analg. 2007;105(4):926-32. 8. Marinović J, Ljubković M, Stadnicka A, Bosnjak ZJ, Bienengraeber M. Role of sarcolemmal ATP-sensitive potassium channel in oxidative stress-induced apoptosis: mitochondrial connection. Am J Physiol Heart Circ Physiol. 2008;294(3):H1317-25. 9. Lirk P, Poroli M, Rigaud M, Fuchs A, Fillip P, Huang CY i sur. Modulators of calcium influx regulate membrane excitability in rat dorsal root ganglion neurons. Anesth Analg. 2008;107(2):673-85. 10. Hogan Q, Lirk P, Poroli M, Rigaud M, Fuchs A, Fillip P i sur. Restoration of calcium influx corrects membrane hyperexcitability in injured rat dorsal root ganglion neurons. Anesth Analg. 2008;107(3):1045-51. 11. Sedlić F, Pravdić D, Ljubković M, Marinović J, Stadnicka A, Bosnjak ZJ. Differences in production of reactive oxygen species and mitochondrial uncoupling as events in the preconditioning signaling cascade between desflurane andsevoflurane. Anesth Analg. 2009;109(2):405-11. 12. Sedlić F, Pravdić D, Ljubković M, Marinović J, Stadnicka A, Bosnjak ZJ. Differences in production of reactive oxygen species and mitochondrial uncoupling as events in the preconditioning signaling cascade between desflurane and Sevoflurane. Anesth Analg. 2009;109(2):405-11. 13. Dujić Ž, Uglešić L, Breško vić T, Valić Z, Heusser K, Marinović J i sur. Involuntary breathing movements improve cerebral oxygenation during apnea struggle phase in elite divers. J Appl Physiol (1985). 2009;107(6):1840-6. 14. Marinović J, Ljubković M, Obad A, Baković D, Breško vić T, Dujić Ž. Effects of successive air and trimix dives on human

cardiovascular function. Med Sci Sports Exerc. 2009;41(12):2207-12.
15. Marinović J, Ljubković M, Obad A, Brešković T, Salamunić I, Denoble PJ i sur. Assessment of extravascular lung water and cardiac function in trimix SCUBA diving. Med Sci Sports Exerc. 2010;42(6):1054-61.
16. Ljubković M, Gaustad SE, Marinović J, Obad A, Ivančev V, Bilopavlović N i sur. Ultrasonic evidence of acute interstitial lung edema after SCUBA diving is resolved within 2-3h. Respir Physiol Neurobiol. 2010;171(2):165-70.
17. Gaustad SE, Brubakk AO, Høydal M, Catalucci D, Condorelli G, Dujić Ž i sur. Immersion before dry simulated dive reduces cardiomyocyte function and increases mortality after decompression. J Appl Physiol (1985). 2010;109(3):752-7.
18. Obad A, Marinović J, Ljubković M, Brešković T, Modun D, Boban M i sur. Successive deep dives impair endothelial function and enhance oxidative stress in man. Clin Physiol Funct Imaging. 2010;30(6):432-8.
19. Ljubković M, Marinović J, Obad A, Brešković T, Gaustad SE, Dujić Ž. High incidence of venous and arterial gas emboli at rest after trimix diving without protocol violations. J Appl Physiol (1985). 2010;109(6):1670-4.
20. Ljubković M, Dujić Ž, Møllerløkken A, Baković D, Obad A, Brešković T i sur. Venous and arterial bubbles at rest after no-decompression air dives. Med Sci Sports Exerc. 2011;43(6):990-5.
21. Dujić Ž, Marinović J, Obad A, Ivančev V, Brešković T, Jovović P i sur. A no-decompression air dive and ultrasound lung comets. Aviat Space Environ Med. 2011;82(1):40-3.
22. Dujić Ž, Brešković T, Ljubković M. Breath hold diving: in vivo model of the brain survival response in man? Med Hypotheses. 2011;76(5):737-40.
23. Brešković T, Uglešić L, Zubin P, Kuch B, Kraljević J, Zanchi J i sur. Cardiovascular changes during underwater static and dynamic breath-hold dives in trained divers. J Appl Physiol (1985). 2011;111(3):673-8.
24. Marinović J, Ljubković M, Brešković T, Gunjača G, Obad A, Modun D i sur. Effects of successive air and nitrox dives on human vascular function. Eur J Appl Physiol. 2012;112(6):2131-7.
25. Ljubković M, Zanchi J, Brešković T, Marinović J, Lojpur M, Dujić Ž. Determinants of arterial gas embolism after scuba diving. J Appl Physiol (1985). 2012;112(1):91-5.
26. Thom SR, Milovanova TN, Bogush M, Bhopale VM, Yang M, Bushmann K i sur. Microparticle production, neutrophil activation, and intravascular bubbles following open-water SCUBA diving. J Appl Physiol (1985). 2012;112(8):1268-78.
27. Brešković T, Lojpur M, Maslov PZ, Cross TJ, Kraljević J, Ljubković M i sur. The influence of varying inspired fractions of O_2 and CO_2 on the development of involuntary breathing movements during maximal apnoea. Respir Physiol Neurobiol. 2012;181(2):228-33.
28. Gemes G, Koopmeiners A, Rigaud M, Lirk P, Sapunar D, Bangaru ML i sur. Failure of action potential propagation in sensory neurons: mechanisms and loss of afferent filtering in C-type units after painful nerve injury. J Physiol. 2013;591(4):1111-31.
29. Bilopavlović N, Marinović J, Ljubković M, Obad A, Zanchi J, Pollock NW i sur. Effect of repetitive SCUBA diving on humoral markers of endothelial and central nervous system integrity. Eur J Appl Physiol. 2013;113(7):1737-43.
30. Thom SR, Milovanova TN, Bogush M, Yang M, Bhopale

VM, Pollock NW i sur. Bubbles, microparticles, and neutrophil activation: changes with exercise level and breathing gas during open-water SCUBA diving. J Appl Physiol (1985). 2013;114(10):1396-405.
31. Kraljević J, Marinović J, Pravdić D, Zubin P, Dujić Ž, Wisloff U i sur. Aerobic interval training attenuates remodelling and mitochondrial dysfunction in the post-infarction failing rat heart. Cardiovasc Res. 2013;99(1):55-64.
32. Madden D, Lozo M, Dujić Ž, Ljubković M. Exercise after SCUBA diving increases the incidence of arterial gas embolism. J Appl Physiol (1985). 2013;115(5):716-22.
33. Zanchi J, Ljubković M, Denoble PJ, Dujić Ž, Ranapurwala S, Pollock NW. Influence of repeated daily diving on decompression stress. Int J Sports Med. 2014;35(6):465-8.
34. Eftedal I, Ljubković M, Flatberg A, Jørgensen A, Brubakk AO, Dujić Ž. Acute and potentially persistent effects of scuba diving on the blood transcriptome of experienced divers. Physiol Genomics. 2013;45(20):965-72.
35. Lozo M, Madden D, Gunjača G, Ljubković M, Marinović J, Dujić Ž. The impact of consecutive freshwater trimix dives at altitude on human cardiovascular function. Clin Physiol Funct Imaging. 2015;35(2):142-9.
36. Madden D, Thom SR, Milovanova TN, Yang M, Bhopale VM, Ljubković M i sur. Exercise before scuba diving ameliorates decompression-induced neutrophil activation. Med Sci Sports Exerc. 2014;46(10):1928-35.
37. Čulić VČ, Van Craenenbroeck E, Mužinić NR, Ljubković M, Marinović J, Conraads V i sur. Effects of scuba diving on vascular repair mechanisms. Undersea Hyperb Med. 2014;41(2):97-104.
38. Madden D, Thom SR, Yang M, Bhopale VM, Ljubković M, Dujić Ž. High intensity cycling before SCUBA diving reduces post-decompression microparticle production and neutrophil activation. Eur J Appl Physiol. 2014;114(9):1955-61.
39. Madden D, Barak O, Thom SR, Yang M, Bhopale VM, Ljubković M i sur. The impact of predive exercise on repetitive SCUBA diving. Clin Physiol Funct Imaging. 2016;36(3):197-205.
40. Barak OF, Madden D, Lovering AT, Lambrechts K, Ljubković M, Dujić Ž. Very Few Exercise-Induced Arterialized Gas Bubbles Reach the Cerebral Vasculature. Med Sci Sports Exerc. 2015;47(9):1798-805.
41. Madden D, Ljubković M, Dujić Ž. Intrapulmonary shunt and SCUBA diving: another risk factor? Echocardiography. 2015;32 Suppl 3:S205-10.
42. Kraljević J, Høydal MA, Ljubković M, Moreira JB, Jørgensen K, Ness HO i sur. Role of KATP Channels in Beneficial Effects of Exercise in Ischemic Heart Failure. Med Sci Sports Exerc. 2015;47(12):2504-12.
43. Jukić A, Carević V, Zekanović D, Stojanović-Stipić S, Runjić F, Ljubković M i sur. Impact of Percutaneous Coronary Intervention on Exercise-Induced Repolarization Changes in Patients With Stable Coronary Artery Disease. Am J Cardiol. 2015;116(6):853-7.
44. Ćavar M, Ljubković M, Bulat C, Baković D, Fabijanić D, Kraljević J i sur. Trimetazidine does not alter metabolic substrate oxidation in cardiac mitochondria of target patient population. Br J Pharmacol. 2016;173(9):1529-40.

Professional and research papers on teaching quality and methodology published in the previous 5 years (up to 5 references)	
Research projects	**2014 – :** Collaborator on “Investigating pathological processes in ischemic human myocardium; basic science tools for major health problem”, CSF (Principal investigator: dr. Darija Baković Kramarić) **2013 – 2016:** Collaborator on “Myocardial energetics as a target for treatment of ischemic heart disease: A translational approach from patient to mitochondria”, CSF **2011 – 2013:** Collaborator on "Development of capacities for underwater assessment of cardiovascular parameters”, Office of Naval Research, USA (Principal investigator: dr. Željko Dujić). **2009 – 2011: Project leader** “Exercise-induced improvement of chronic heart failure: the role of KATP channels and mitochondria”, Unity through Knowledge Fund. **2009 – 2011:** Collaborator on “Physiology of SCUBA diving”, Unity through Knowledge Fund (Principal investigator: dr. Željko Dujić) **2006-2007: Project leader “**
Program and degree attained in methodic-psychological-didactic-pedagogical competences	Doctorate in physiology, USA
ACKNOWLEDGMENTS AND AWARDS	
ACKNOWLEDGMENTS AND AWARDS za nastavni i znanstveni rad	2003 Graduate School Fellowship, University of Split 2005 American Heart Association Predoctoral Fellowship Award

Title, first and last name	**Assoc. Prof. Dr. Sc. Jasna Marinović Ljubković**
Course taught at the proposed study program	Writing research projects
GENERAL INFORMATION	
Address	Šoltanska 2, 21000 Split
Phone	+ 385 21 557 946
E-mail	jasna.marinovic@mefst.hr
Personal webpage	http://genom.mefst.hr/physiology/cv/jmarinovic.html
Born	1977
Registration number in Scientist Registry	299844
Academic rank and last date of appointment	Senior research fellow, 23 May 2012
Research and teaching, artistic and teaching, or teaching-only position and last date of appointment	Associate professor, 19 July 2012
Area and field of appointment to academic rank	Biomedicine and healthcare, basic medical sciences
PARTICULARS OF PRESENT EMPLOYMENT	
Institution of employment	University of Split School of Medicine

Date of employment	1 November 2008
Job title (professor, researcher, assistant, etc)	Associate professor
Field of work	Physiology
Function	Leader of Laboratory for Cell Physiology
EDUCATION - Highest degree attained	
Profession/Rank	Doctor of Science in the area of physiology
Institution	Medical College of Wisconsin
Place	Milwaukee, WI, USA
Date	2007
FURTHER EDUCATION	
Year	2002-2007
Place	Milwaukee, SAD
Institution	Medical College of Wisconsin
Further education field	Physiology, research in cardiovascular system
LANGUAGES SPOKEN	
Mother tongue	Croatian
Foreign language proficiency level on a scale from 2 (sufficient) to 5 (excellent)	English, 5
SUBJECT-AREA COMPETENCY	
Previous experience in delivering similar courses (title of the course, study program, program level)	Participated in teaching postgraduate EBM courses in Split (Research measurement).
Authorship of university/school-level textbooks in the subject field	Translator and editor of translated textbook „Medicinska fiziologija“ by Guyton and Hall
Professional, research and artistic papers published in previous 5 years in the subject field (up to 5 references)	1. Kraljević J, Marinović J, Pravdić D, Zubin P, Dujić Ž, Wisloff U i sur. Aerobic interval training attenuates remodelling and mitochondrial dysfunction in the post-infarction failing rat heart. Cardiovasc Res. 2013;99(1):55-64. 2. Lozo M, Madden D, Gunjača G, Ljubković M, Marinović J, Dujić Ž. The impact of consecutive freshwater trimix dives at altitude on human cardiovascular function. Clin Physiol Funct Imaging. 2015;35(2):142-9. 3. Bilopavlović N, **Marinović J**, Ljubković M, Obad A, Zanchi J, Pollock NW i sur. Effect of repetitive SCUBA diving on humoral markers of endothelial and central nervous system integrity. Eur J Appl Physiol. 2013 Jul;113(7):1737-43. 4. Kraljević J, Høydal MA, Ljubković M, Moreira JB, Jørgensen K, Ness HO i sur**.** Role of KATP Channels in Beneficial Effects of Exercise in Ischemic Heart Failure. Med Sci Sports Exerc. 2015 Dec;47(12):2504-12. 5. Ćavar M, Ljubković M, Bulat C, Baković D, Fabijanić D, Kraljević J i sur**.** Trimetazidine does not alter metabolic substrate oxidation in cardiac mitochondria of target patient population. Br J Pharmacol. 2016 May;173(9):1529-40.
Professional and research papers on teaching quality and methodology published in the previous 5 years (up to 5 references)	

Professional, research and artistic projects in the subject field in previous 5 years (up to 5 references)	**2014 – :** Collaborator on “Investigating pathological processes in ischemic human myocardium; basic science tools for major health problem”, CSF (Principal investigator: dr. Darija Baković Kramarić) **2013 – : Project leader** “Myocardial energetics as a target for treatment of ischemic heart disease: A translational approach from patient to mitochondria”, CSF **2011 – 2013:** Collaborator on "Development of capacities for underwater assessment of cardiovascular parameters”, Office of Naval Research, USA (Principal investigator: dr. Željko Dujić). **2009 – 2011:** Collaborator on “Exercise-induced improvement of chronic heart failure: the role of KATP channels and mitochondria”, Unity through Knowledge Fund (Principal investigator: Dr. Marko Ljubković). **2009 – 2011:** Collaborator on “Physiology of SCUBA diving”, Unity through Knowledge Fund (Principal investigator: Dr. Željko Dujić)
Program and degree attained in methodic-psychological-didactic-pedagogical competences	
ACKNOWLEDGMENTS AND AWARDS	
Acknowledgments and awards for teaching and research/artistic work	2003 Graduate School Fellowship, University of Split 2006 American Heart Association Predoctoral Fellowship Award 2007 Best Dissertation Award, Graduate school, Medical College of Wisconsin 2007 Excellence in Physiology Award, Department of Physiology, Medical College of Wisconsin

Title, first and last name	Prof. Dr. Sc. Jelka Petrak
Course taught at the proposed study program	Medical information search
GENERAL INFORMATION	
Address	Zinke Kunc 4, 10000 Zagreb
Phone	01/6152059
E-mail	jelka.petrak@mef.hr
Personal webpage	
Born	1948
Registration number in Scientist Registry	147472
Academic rank and last date of appointment	Research advisor (September 2010.)
Research and teaching, artistic and teaching, or teaching-only position and last date of appointment	Full professor, tenured, 11 October 2011
Area and field of appointment to academic rank	Social sciences – information and communication sciences
PARTICULARS OF PRESENT EMPLOYMENT	
Institution of employment	University of Zagreb, School of Medicine

Date of employment	1980
Job title (professor, researcher, assistant, etc)	
Field of work	
Function	Retired
EDUCATION - Highest degree attained	
Profession/Rank	Professor of comparative literature and Italian language, postgraduate study program at the School of Medicine in Zagreb, doctorate earned at Philosophical Faculty in Zagreb
Institution	Philosophical Faculty
Place	Zagreb
Date	1977
FURTHER EDUCATION	
Year	2001
Place	Stony Brook
Institution	SUNY, State University of New York,
Further education field	Library and information resource management
LANGUAGES SPOKEN	
Mother tongue	Croatian
Foreign language proficiency level on a scale from 2 (sufficient) to 5 (excellent)	English (4)
Foreign language proficiency level on a scale from 2 (sufficient) to 5 (excellent)	Italian (3)
Foreign language proficiency level on a scale from 2 (sufficient) to 5 (excellent)	
SUBJECT-AREA COMPETENCY	
Previous experience in delivering similar courses (title of the course, study program, program level)	Structure, methods, and functioning of scientific work (doctoral program at the School of Medicine in Zagreb, Module Director „Medical Information Search and Appraisal“); elective course „It's valuable to find valid evidence“ (School of Medicine in Zagreb)
Authorship of university/school-level textbooks in the subject field	Co-author of a textbook „Introduction to research in medicine“ (editor: M. Marušić)
Professional, research and artistic papers published in previous 5 years in the subject field (up to 5 references)	Šember, Marijan; Petrak, Jelka. **Radovi doktorskih kandidata s Medicinskog fakulteta Sveučilišta u Zagrebu u Croatianm časopisima**. // *Liječnički vjesnik*. **136** (2014) , 1-2; 18-21 (članak, znanstveni). Franić, Miljenko; Kujundžić Tiljak, Mirjana; Požar, M.; Romić, D.; Mimica, M.; Petrak, Jelka; Ivanković, Davor. **Anterior versus posterior approach in 3D correction of adolescent idiopathic thoracic scoliosis : a meta-analysis**. // *Orthopaedics & traumatology : surgery & research*. **98** (2012) , 7; 795-802 (članak, znanstveni Petrak, Jelka; Šember, Marijan; Granić, Davorka. **Procjena publicističke produktivnosti Klinike za unutrašnje bolesti Medicinskog fakulteta i Kliničkog bolničkog centra Zagreb**. // *Liječnički vjesnik : glasilo Hrvatskoga liječničkog zbora*. **134** (2012) , 3-4; 69-74 (članak, znanstveni).

	Škorić, Lea; Šember, Marijan; Markulin, Helena; Petrak, Jelka. **Informacijska pismenost u nastavnom programu diplomskog studija Medicinskog fakulteta Sveučiulišta u Zagrebu**. // *Vjesnik bibliotekara Hrvatske*. **55** (2012) , 3/4; 17-28 (članak, znanstveni).  Markulin, Helena; Petrak, Jelka. **Medicina utemeljena na znanstvenim dokazima: stavovi zdravstvenog osoblja jedne kliničke bolnice**. // *Liječnički vjesnik: glasilo Hrvatskoga liječničkog zbora*. **132** (2010) , 7-8; 218-221 (članak, znanstveni).
Professional and research papers on teaching quality and methodology published in the previous 5 years (up to 5 references)	Petrak, Jelka; Markulin, Helena; Šember, Marijan. **Uloga knjižnice u trećem ciklusu visoke naobrazbe** // *Knjižnice: kamo i kako dalje?* / Hebrang Grgić, Ivana ; Špac, Vesna (ur.). Zagreb: Hrvatsko knjižničarsko društvo, 2014. 261-267 (predavanje,domaća recenzija,objavljeni rad,stručni)
Professional, research and artistic projects in the subject field in previous 5 years (up to 5 references)	Research project leader *Prijenos znanstveno utemeljenih medicinskih dokaza u kliničku praksu* (Transfer of scientific medical evidence into clinical practice)
Program and degree attained in methodic-psychological-didactic-pedagogical competences	
ACKNOWLEDGMENTS AND AWARDS	
Acknowledgments and awards for teaching and research/artistic work	

Title, first and last name	Academician Stjepan Gamulin
Course taught at the proposed study program	Introduction to evidence-based medicine Quantitative methods in clinical research Evidence-based medicine Doctoral dissertation topic proposal I, II i III
GENERAL INFORMATION	
Address	Donjostupnička ul 7D, 10255 Gornji Stupnik
Phone	01 6588094
E-mail	sgamulin@hazu.hr
Personal webpage	/
Born	1934
Registration number in Scientist Registry	013041
Academic rank and last date of appointment	Research advisor, 1982
Research and teaching, artistic and teaching, or teaching-only position and last date of appointment	Professor Emeritus, 2000 Croatian Academy of Sciences and Arts, full member, 2002
Area and field of appointment to academic rank	Biomedicine and healthcare, clinical medical sciences
PARTICULARS OF PRESENT EMPLOYMENT	
Institution of employment	Retired
Date of employment	1999.
Job title (professor, researcher, assistant, etc)	
Field of work	
Function	
EDUCATION - Highest degree attained	
Profession/Rank	Dr. Sc., Ph.D.(biochemistry)
Institution	University of Zagreb School of Medicine Faculty of Science, University of London
Place	Zagreb London
Date	1970 1971
FURTHER EDUCATION	
Year	1970-1972
Place	London
Institution	Department of Chemical Pathology, King's College Hospital,
Further education field	Biochemistry, molecular pathophysiology
LANGUAGES SPOKEN	
Mother tongue	Croatian
Foreign language proficiency level on a scale from 2 (sufficient) to 5 (excellent)	English, 5
Foreign language proficiency level on a scale from 2 (sufficient) to 5 (excellent)	
Foreign language proficiency level on a scale from 2 (sufficient) to 5 (excellent)	
SUBJECT-AREA COMPETENCY	
Previous experience in delivering similar courses (title of the course, study program, program level)	Together with Prof. Željko Dujić, launched the doctoral study program "Evidence-based medicine" and postgraduate specialist program "Clinical Epidemiology", Co-Director of these study programs and above-listed courses.
Authorship of university/school-level textbooks in the subject field	S. Gamulin, Klinička istraživanja, Medicinska naklada Zagreb, 2015,

	S. Gamulin, M. Marušić, Z. Kovač Patofiziologija 7. izdanje, Medicinska Naklada, Zagreb, 2011. Gamulin S. Patofiziologija za visoke zdravstvene škole. Zagreb: Medicinska naklada, 2005. Kovač Z, Gamulin S. i sur. Patofiziologija, Zadatci za problemske
Professional, research and artistic papers published in previous 5 years in the subject field (up to 5 references)	Morović-Vergles J, Gamulin S. Anti-TNFα therapy and control of chronic pain in ankylosing spondylitis. J Pain Symptom Manage. 2010;4:e9-11. Morović-Vergles J, Salamon L, Marasović-Krstulović D, Kehler T, Sakić D, Badovinac O, Vlak T, Novak S, Stiglić-Rogoznica N, Hanih M, Bedeković D, Grazio S, Kadojić M, Milas-Ahić J, Prus V, Stamenković D, Sošo D, Anić B, Babić-Naglić D, Gamulin S. Is the prevalence of arterial hypertension in rheumatoid arthritis and osteoarthritis associated with disease? Rheumatol Int. 2013;33:1185-1192 Mitrović J, Morović-Vergles J, Horvatić I, Badžak J, Stojić M, Gamulin S. Ambulatory arterial stiffness index and carotid intima-media thickness in hypertensive rheumatoid patients: a comparative cross-sectional study. Int J Rheum Dis. 2015 May 20. doi: 10.1111/1756-185X.12613. [Epub ahead of print]. Kehler T, Šakić D, Badovinac O, Vlak T, Novak S, Štiglić-Rogoznica N, Hanih M, Bedeković D, Grazio S, Kadojić M, Milas-Ahić J, Prus V, Stamenković D, Šošo D, Anić B, Babić-Naglić Đ, Gamulin S. Differences in the prevalence and characteristics of metabolic syndrome in rheumatoid arthritis and osteoarthritis: a multicentric study. Rheumatol Int. 2015;35:2047-2057
Professional and research papers on teaching quality and methodology published in the previous 5 years (up to 5 references)	
Professional, research and artistic projects in the subject field in previous 5 years (up to 5 references)	
Program and degree attained in methodic-psychological-didactic-pedagogical competences	Teaching undergraduate and postgraduate courses since 1975.
ACKNOWLEDGMENTS AND AWARDS	
Acknowledgments and awards for teaching and research/artistic work	1996. Order of Morning star of Croatia with Ruđer Bošković face 1999. „Josip Juraj Strossmayer“ Award (shared with M. Marušić) for a scientific work „Patofiziologija“ (Pathophysiology),

	4th edition

Title, first and last name	Assist. Prof. Dr. Sc. Nataša Boban, MD
Course taught at the proposed study program	Healthcare quality
GENERAL INFORMATION	
Address	Dubrovačka 3, 21 000 Split
Phone	531 621
E-mail	natasa.boban@st.htnet.hr
Personal webpage	
Born	1965
Registration number in Scientist Registry	246494
Academic rank and last date of appointment	Research Associate National Council for Science, University of Zagreb, School of Medicine, 2011.
Research and teaching, artistic and teaching, or teaching-only position and last date of appointment	Assistant Professor University of Split, School of Medicine, 2012.
Area and field of appointment to academic rank	Biomedicine and healthcare Public health and health protection Epidemiology
PARTICULARS OF PRESENT EMPLOYMENT	
Institution of employment	Split University Hospital Center School of Medicine in Split
Date of employment	since 1992
Job title (professor, researcher, assistant, etc)	Professor
Field of work	Epidemiology, Microbiological food safety
Function	Head of Department of Clinical Epidemiology, Split University Hospital Center Department of Public Health, School of Medicine in Split
EDUCATION - Highest degree attained	
Profession/Rank	Assistant Professor Dr. Sc. Specialist in Epidemiology Doctor of medicine
Institution	University of Split School of Medicine Croatian Ministry of Health, Croatian Institute of Public Health, School of Medicine in Zagreb School of Medicine in Split University of Zagreb School of Medicine
Place	Split Zagreb Zagreb Zagreb
Date	2012 2010 1999 1989
FURTHER EDUCATION	
Year	- 1989-1992 - 1996 - 2001/2002
Place	- USA, Milwaukee, WI - Utrecht and Amsterdam, Netherlands School of Public health -Zagreb and abroad
Institution	- School of Medicine MCW, USA - Utrecht and Amsterdam - London School of Economics and School of Public Health „A. Štampar“ University of Zagreb School of Medicine

Further education field	- postdoc research training - Masterclass „Healthcare systems in transformation.-an international perspective“ - postgraduate study program “Leadership and management in health services“
LANGUAGES SPOKEN	
Mother tongue	Croatian
Foreign language proficiency level on a scale from 2 (sufficient) to 5 (excellent)	English(5)
Foreign language proficiency level on a scale from 2 (sufficient) to 5 (excellent)	Italian (3)
Foreign language proficiency level on a scale from 2 (sufficient) to 5 (excellent)	
SUBJECT-AREA COMPETENCY	
Previous experience in delivering similar courses (title of the course, study program, program level)	Control and prevention of infection and quality control (Course director at graduate and undergraduate study programs, University Department of Health Studies, University of Split)
Authorship of university/school-level textbooks in the subject field	University textbook „Epidemiologija zaraznih bolesti“ (Epidemiology of infectious diseases), Medicinska naklada, 2010
Professional, research and artistic papers published in previous 5 years in the subject field (up to 5 references)	- *mentoring the Master's*: Sandra Prgomet: „Ponderalni indeks i ostali čimbenici rizika za nastanak gastrointestinalne perforacije Code novorođenčadi liječene u novorođenačkoj jedinici intenzivnog liječenja treće razine zahtjevnosti liječenja“, 2012. - Boban --N, Jerončić A, Punda-Polić V. Outbreak of nosocomial bacteriemias, caused by *Enterobacter gergoviae* and *Enterobacter aerogenes*, in the neonatal intensive care unit, case-control study. Signa Vitae. 2011; 6(1):27-32. magistarski rad, School of Medicine in Split, 2012. - Dukić V, Udiljak N, Bartolić N, Vargović M, Kuduz R, Boban N, Pećina M, Polasek O.Surgical scientific publication and the 1991-1995 war in Croatia.Coll Antropol. 2011 Jun;35(2):409-12. University of Zagreb, School of Medicine, Zagreb, Croatia. - Mudnić I, Budimir D, Jajić I, Boban N, Sutlović D, Jerončić A, Boban M. Thermally treated wine retains vasodilatory activity in rat and guinea pig aorta. J Cardiovasc Pharmacol. 2011 Jun;57(6):707-11. - Boban N, Tonkić M, Budimir D, Modun D, Sutlović D, Punda-Polić V, Boban M. Antimicrobial effects of wine: separating the role of polyphenols, pH, ethanol, and other winw components. Journal of Food Sciences. 2010; 75(5):M322-M326 - Doctoral dissertation: „ Antimikrobni učinci derivata intaktnog vina i termički obrađenog vina na hranom prenosive vrste *Salmonella enterica* i *Escherichia coli*. University of Split. School of Medicine
Professional and research papers on teaching quality and methodology published in the previous 5 years (up to 5 references)	
Professional, research and artistic projects in the subject field in previous 5 years (up to 5 references)	- MSES research project No. 216-1080315-0289; collaborator on: „Seroepidemiologija, nasljedna predispozicija i zarazne bolesti u Hrvatskoj, project No. 216-2160547-0537. -Collaboraton on a CSF project No. 8652 „Biological effects of wine: the influence of vinification technology, dealcoholization and aging of wine“.
Program and degree attained in	- „Leadership and management in health services“,

methodic-psychological-didactic-pedagogical competences	postgraduate study program organized by London School of Economics and School of Public Health „A. Štampar“ University of Zagreb School of Medicine - „Art of Medical Teaching“, University of Split, School of Medicine
ACKNOWLEDGMENTS AND AWARDS	
Acknowledgments and awards for teaching and research/artistic work	
Evaluation by students	Epidemiology Evaluation by students – general index: 4,5 teaching quality: 4,7

3.4. Optimum number of students

The optimum number of students is 20.

3.5. Cost of the study program – total and per student

The expenses of the entire study program amount to about 400,000.00 HRK annually, i.e. 20,000.00 HRK per student.

3.6. Follow-up of the program delivery quality and performance

According to the Standards and guidelines for quality assurance in the European Higher Education Area, on the basis of which the procedures for quality management are established by the University of Split, the program proposer shall define the plan of program quality assurance procedures	
Documents providing the basis for component quality assurance system:	
• Ordinance on Component Quality Assurance System (enclosed)	
• Component Quality Assurance System Manual (enclosed)	
Description of procedures for evaluating the quality of program delivery: • For each procedure, describe the method (usually a student or faculty questionnaire, self-evaluation questionnaire), list the providers (component, university office), describe the manner of data analysis and informing, and timeline of evaluation process • If described in an enclosed document, provide the title of the document and article.	
Evaluation of work of faculty and associates	Teaching quality is evaluated by student survey coordinated by the Office for Science, Postgraduate Studies, and Continuing Medical Education. The evaluation process consists of informing students and faculty, student survey by use of a questionnaire, collected data analysis and submission of analysis results, and quality improvement measure.
Follow-up of evaluation and correspondence between evaluation and expected learning outcomes	Testing of student knowledge at our School is performed during classes (continuos evaluation) and in exams. For the testing, correspondence between given literature and classes and between literature and exam content is especially important.
Evaluation of resource availability (space, human, information) for learning and teaching process	Resource availability is evaluated partly by students, who evaluate the work of professional and administrative services and other aspects of student life via survey, and partly by student evaluation of the entire program. The survey is carried out by the Department/Center of Quality Improvement at the end of each academic year. The data are analyzed and the results submitted by the Department for Quality.
Availability and evaluation of student support (mentoring, tutoring, advising)	After enrollment in the first year of the program, each student is appointed a tutor. The goal of this function is to help and advise student in order to facilitate and improve the student's progress through the program.
Follow-up of student pass rates per course and entire program	The Program Council follows up the student pass rate for each course.
Student satisfaction with the program as a whole	
Receiving feedback from external stakeholders (alumni, employers, labor market, and other relevant organizations)	The School is in contact with the Croatian Medical Chamber, Croatian Employment Institute (regional office in Split), and other stakeholders and observes the employment trends and market needs for professionals such as those educated at the School.
Student practice evaluation, if any	Not applicable.

(short description of procedures of implementation, evaluation, and assurance of quality)	
Other evaluation methods performed by the proposer	/
Description of how the external stakeholders are informed about the study program (students, employers, alumni)	The University of Split School of Medicine provides online (www.mefst.hr) information on study programs, admission requirements, and enrollment quotas. In our opinion, personal contact is very important and, therefore, we participate in “University Fair” every year. We also present our School at numerous festivals, such as “Summer Science Factory“, “Science Festival”, and “The Week of the Brain”, which are usually well visited by interested high-school students. Information on the study programs and life at our School is also disseminated through “Glasnik” (“The Courier“) of the School of Medicine in Split, published twice a year since 2007.