Study programme	MEDICAL STUDIES IN ENGLISH					
Cycle	INTEGRATED	Type	UNIVERSITY			
Study track	-	Module	-			
Year of study	1	Semester	I			
Course title	SCIENTIFIC METHODOLOGY	Course code	MFMSE104			
ECTS	7	Status	OBLIGATORY			
Teaching hours			Lectures	Exercises	Seminars	Practice
			24	46	30	-
Teachers	Prof. Renata Pecotić, MD, PhD		6	6	2	
	Prof. Zoran Đogaš, MD, PhD, full attended		6	4	2	
	Prof. Maja Valić, MD, PhD, full attended		6	2	2	
	Assoc. Prof. Ivana Pavlinac Dodig, MD, PhD		6	8	6	
	Assoc. Prof. Josip Lesko, MD, PhD			2	2	
	Linda Lušić Kalcina, PhD, assistant			6	4	
	Katarina Madirazza, PhD, assistant			8	6	
	Sijana Demirović, MD, assistant			8	6	

Course objectives	The aim of the course is to enable students to acquire knowledge and skills necessary for the following: - performing the study and presenting the results of the research thesis by applying the fundamental postulates of science and information technology; - learning (especially permanent medical education i.e. lifelong learning) using the results of scientific research studies. Additional aim is to enable that all students, future physicians, recognize and utilize the following during later years of study: - evidence-based medical information (information) - continuous development of the scientific way of thinking and the use of scientific principles in studying various subjects of preclinical and clinical medicine - the role and the tasks of physicians in the health care team using basic scientific principles in the development and improvement of diagnosis of disease and treatment of patients - presenting the results of professional and research work using IT technology - learning (especially in the field of permanent medical training) using computer networks (the Internet).

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

Prerequisites for the course enrolment	In accordance with the Rulebook on the Integrated Studies at the School of Medicine University of Mostar.	
Course content	Week / shift	Topic
	Lectures	L1. Medicine is science - an introductory lecture L2. Scientific research L3. Scientific information L4. Scientific work L5. Medical data L6. Science and preclinical/clinical medicine L7. Medical information on the web L8. Index publications and access to them L9. Ethics in research L10. Basics of statistical conclusion L11. How to select an appropriate statistical test? L12. Presenting the results of scientific work
	Seminars	S1. Types of scientific research, planning S2. Planning scientific research and determining topics by individual groups of students S3. Types of scientific research, measurement S4. Use of bibliographic sources and strategies for their search S5. Scientific article in medicine S6. Data collection and measurement S7. Data types (Analog, Digital) S8. Preparation for data processing S9. Preparation for writing own scientific article (instructions for authors, mentor agreement) S10. Interpreting the research results S11. Scientific article presentation and discussion S12. Writing own scientific article S13. Communication skills in scientific research S14. Preparation of the final draft of students' own scientific work
	Practical (Exercises)	P1. Data collection P2. Data collection online P3. Data types (analog, digital), creating the coding plan P4. Data organization and formatting – sorting, formulas, functions, filters P5. Confronting the data – Data entry P6. Confronting the data – Data entry (2) P7. Data validation – analyzing the correctness and validity of the entered data; organizing data P8. Dealing with the data – Data processing P9. Dealing with the data – Data processing (2) P10. Confronting the data – Data presentation P11. Writing the Materials and methods and Results sections of own scientific article P12. Search for the relevant journal articles in accordance with the set problem and strategy P13. Analysis of the structure and content of the selected scientific article P14. Writing the Introduction and Discussion sections of own scientific article P15. Writing References – introduction to reference organizing tools P16. Final writing and submitting the scientific paper for review
Language	English	
E-learning	Classes are conducted live. If necessary, lectures, seminars and part of the exercises can be combined (live and online) or online via e-learning platforms (Google Meet) - up to max. of 20% of the classes can be held online.	

Teaching methods	Teaching, interactive and active-experiential.

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

Allocation of ECTS credits and share in the grade				
Student obligations	Learning outcome code	Hours of workload	Share in ECTS	Share in grade
Attending classes		80	0,7	10%
Practical/project task with oral presentation	IU-MFMSE104-5	70	2,8	40%
Written exam	IU-MFMSE104-1 IU-MFMSE104-2 IU-MFMSE104-3 IU-MFMSE104-4 IU-MFMSE104-6	60	3,5	50%
In total		210	7	100%

Method of calculating the final grade

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

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

Additional course information

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

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

The written test consists of 30 written questions of the multiple-choice type with one correct answer. The minimum for passing is 17 points or 55% of correctly solved questions.

The oral presentation includes the presentation of scientific research works according to the principle applicable for presentations at the congresses. Each student group presents their scientific research results with a PowerPoint presentation and answers the questions of fellow students and teachers with a final poster presentation (40% of the final grade).

The final grade is calculated as the total sum of points achieved during active attendance at classes (10% of the final grade), writing of the scientific paper and oral/poster presentation (40% of the final), and the results of the written test (50% of the final grade).